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ABSTRACT

To study the school adjustment of children known to have had prolcnged high fevers, 25 elementary school students who had had acute bacterial meningitis were matched by age, sex, and socioeconomic levels with peers from their same classroom. The nature and extent of school problems and educational handicaps of the post-meningitic children examined through information obtained by the data gathering devices constructed for the study. Information gathered related to school adjustment, academic achievement, teacher and peer ratings, psychological test performance, speech and hearing assessment, and pediatric, psychiatric, and visual examinations (total of more than 1,000 different variables). The post-meningitic children performed significantly poorer than the controls on many school related behaviors (deficient on teacher ratings of overall school adjustment and academic problems, and in reading achievement, instructional receptivity, getting along with classmates, self-confidence, and gross as well as fine motor coordination). Appended are an extensive annotated bibliography of the sequelae of acute bacterial meningitis, data collection forms, print-outs of categorical raw data, and various tables of correlation and factor structure, and intercorrelations of factor scores. (KW)

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THE SCHOOL ADJUSTMENT OF POST-MENINGITIC CHILDREN

John E. Pate, Ed. D.
Department of Psychiatry
Vanderbilt University
School of Medicine
Nashville, Tennessee 37203

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John E. Pate, Ed. D.

Vanderbilt University

Nashville, Tennessee

February 15, 1970

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PREFACE

Special recognition and personal appreciation are extended to co-workers in the participating research communities:

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The conduct of this study has depended upon the interest, imagination, and hard work of many dedicated people. The highest tribute to them is that their final recommendations were being implemented while the final report was still in preparation.

John E. Pate, Ed. D.
Project Director
February 15, 1970

SUMMARY

A disproportionately large share of children seen in child guidance and mental health clinics appear to share a history of failure in the first few years of school. Very frequently, these children are reported to have suffered from prolonged high fevers during early infancy. Relationships between prolonged high fevers and organic behavior problems which frequently lead to school difficulty have been inferred but rarely seriously studied.

A consortium representing the public schools and medical colleges of four major metropolitan centers agreed to cooperatively study the school adjustment of a group of children known to have had prolonged high fevers. Acute bacterial meningitis was selected as the criterion measure, since it does induce high fevers and can also be confirmed through laboratory procedures. The consortium elected to conduct a pilot retrospective study comparing a small sample of post-meningitic children with their matched controls prior to extensive validation studies and subsequent prospective models.

Scope of the Study

The pilot retrospective study detailed in this report was conducted in one of the four research communities comprising the consortium. It was the first exploratory step in developing data gathering instruments, in comparing a small sample of post-meningitic children with their matched non-post-meningitic controls, and in constructing a vehicle for implementation of larger studies if results warranted. This initial phase of research strongly emphasized multi-disciplinary and multi-institutional collaboration involving educators, psychologists, physical educators, pediatricians, pediatric neurologists, psychiatrists, speech and hearing analysts, and pediatric epidemiologists. Concert of these professional specialists and the institutions was vital from inception of the major program design through conclusion of this first exploratory stage. Since the problem of school adjustment of children was viewed as important by all participating research communities, systems for implementation of findings were also considered a vital thread in the research plan.

Although the ripple effect growing from interdisciplinary and interinstitutional research can with safety be assumed, this exploratory study has demonstrated the ripple effect by the completion of three impressive peripheral studies among the cooperating research communities.

Objectives

The exploratory retrospective study established three goals as base lines upon which to design validation and prospective studies.

1. A study of the nature and extent of school problems and educational handicaps affecting post-meningitic children during their first three years in school.
2. The exploration and delineation of screening procedures and pre-school treatment for the prevention of school adjustment problems among post-meningitic children.
3. Preparation for subsequent field implementation based upon the findings.

Methods

Data gathering devices were cooperatively constructed by the four research communities to describe objectively information relating to general school adjustment, school achievement, teacher ratings, peer ratings, psychological test performance, speech and hearing assessment, pediatric history, pediatric examination, pediatric neurological examination, psychiatric examination, and visual examination. A search of medical records in the Nashville-Davidson County hospitals netted a pool of 62 children who had survived laboratory confirmed acute bacterial meningitis without observable sequelae, who had had the disease at least two years prior to school entrance, and who were presumably enrolled in the regular primary grades of school. Mortality, profound sequelae, institutionalization, assignment to special education classes, refusal to cooperate, and untraceable subjects reduced the pool to 25 post-meningitic children who completed all phases of the examinations. The 25 experimental subjects were matched by age, sex, and socioeconomic level with peers from their same classroom; and each pair of matched subjects was examined in the same order by the same examiner in a blind manner.

Performance of experimental and control subjects were compared by "t" tests, and those variables discriminating at $p \leq .20$ were rescored and subjected to chi square test. Items with a chi square probability of .10 or less were then computed by a correlation matrix principal axis factor analysis and varimax rotation of the criterion measure. A second approach to data analyses entailed separate factor analyses of educational data, psychological data, speech and hearing data, and medical data. Factors derived from these independent analyses were then intercorrelated. The overlapping and low reliability factors were dropped, and

the remaining factors were then subjected to a multiple discriminate analysis.

Results

This sample of post-meningitic children were found to be significantly deficient on teacher ratings of overall school adjustment and of academic problems presented as well as deficient in measures of reading achievement. They appeared to be handicapped on a cluster of variables described as instructional receptivity. This factor encompasses various aspects of verbal organization and expression and ability to associate, all of which are closely related to, but which are not quite the same as, that which is measured by intelligence tests. Another factor indicates difficulty with what might be termed the student image. These variables suggest that post-meningitic children have difficulty in getting along with classmates, with facing up to new situations, with self-confidence, and generally acting the role of an interested, alert and popular student. Several factors point to poor capacity for neurological organization, indicating that post-meningitic children have difficulty with gross as well as fine motor coordination and that these difficulties interfere with many aspects of school functioning. Several other factors with some neurological components emerged, but their precise meaning and relevance were not clear.

The second approach, a pure mathematical analysis of all variables in the four classes of data, led to a group of 24 factors which, as a set, were not significant in distinguishing the two groups. However, three of the factors singly had a very high level of significance and were logically closely similar to factors identified in the first clinical-statistical approach.

Significance of the Findings

These findings indicate that this group of 25 post-meningitic children who had survived acute bacterial meningitis with no observable sequelae performed significantly poorer than their matched controls on a variety of school related behaviors. This was a small sample of children; they were measured on more than 1000 different variables; therefore, the findings must be viewed cautiously. But the data in this study indicate that this group of post-meningitic children are significantly handicapped in school, and their chances for success are lower than those for normal non-post-meningitic children..

The consortium of research communities sustained its momentum through the conduct of the exploratory retrospective study and, in addition, completed three peripheral

studies: 1) an annotated bibliography on the sequelae of acute bacterial meningitis; 2) a separately funded study of another group of post-H. influenza-meningitic children compared to their siblings; and 3) a study of special education classes for perceptually handicapped children in the four research communities.

Implications

This exploratory retrospective study introduces some grave concerns for the probability of school adjustment problems among children who have survived acute bacterial meningitis. If similar illnesses produce traumas as debilitating as meningitis, the situation is even more urgent. If the evidence from this study is replicated on a larger sample of post-meningitic children, high priority must be awarded to pre-school intervention in the home immediately following the disease episode.

Recommendations

In view of the findings, the consortium of research communities should undertake a large scale validation of the pilot study results. To tighten the design, only post-H. influenza-meningitic children should be included in the validation, and those variables discriminating in the pilot study should guide the validating data collection. Planning and organization for experimentation to test the effectiveness of pre-school intervention should be initiated during the early stage of validation study. If the findings of the pilot study are validated on a larger sample, implementation of pre-school intervention to minimize school adjustment problems is imperative.

CHAPTER I

INTRODUCTION

This report describes a study which evolved from discussions and correspondence involving numerous professional disciplines in the public schools and the medical colleges of four active child research communities: Atlanta, Memphis, Nashville, and New Orleans. The public schools in each of these cities, together with their respective local medical colleges of Emory University, University of Tennessee, Vanderbilt University, and Tulane University, share an interest in an expansion of applied research on the problems of handicapped children.

In selecting one area of common concern, the school adjustment of post-meningitic children, the four research communities charted a course for this exploratory study as preparation for a subsequent validation and prospective research design. This initial inquiry was conducted at Vanderbilt University where the program was conceived and initiated. Outcome of this exploratory phase and recommendations for expanded research are the content of this report.

This introductory section provides a background for the research project, briefly stages the scope and objectives of the study, and indicates the significance of the undertaking.

Background for the Project

For more than four years, the principal investigator and his colleagues have been conducting independent research to screen out kindergarten and beginning first grade students who will not make an adequate adjustment in school. These children with potential problems could then be referred to specialists for diagnosis, remedial measures, and special educational guidance, thereby preventing or ameliorating their school problems. This protracted research led to the development and standardization of the First Grade Screening Test (FGST).

Field research, pilot studies, and the FGST standardization studies over the past six years repeatedly returned the investigator to the inescapable fact that some children are simply not able to meet the social and academic expectations of regular school. Some of these children are mentally retarded, some are organic behavior problems, and some are emotionally disturbed; but most, probably, have mixtures of all three handicaps. Many promising school procedures augur a more satisfactory school environment

for these children; but, clearly, more needs to be done to help the handicapped before they are faced with the expectations of classroom procedures.

School guidance services and mental health clinics are well aware that a disproportionately large number of people with school and/or mental health problems have a common history of first grade failure. Of arresting interest is the frequency with which these children with school problems report a history of prolonged high fevers during early infancy. Reference to early childhood high fevers appeared so often in staff conferences in child psychiatry and the mental health clinic at Vanderbilt that it soon became a topic of general discussion and concern by the various disciplines attending conferences.

Educators, pediatricians, psychiatrists, social workers, psychologists, and nurses who participate in the staff conferences often queried whether there was, in fact, a direct relationship between prolonged high fevers in infancy and poor school adjustment. These relationships had been subjectively assumed but rarely seriously studied. Therefore, it seemed of prime educational import to study the relationships between school adjustment and possible sequelae from high fevers.

Of the various childhood diseases which could induce organic behavior problems through high fevers in infancy, bacterial meningitis is one of the few which can be surely diagnosed by laboratory procedure. With bacterial meningitis as the criterion, investigators could compare one homogeneous group of known post-meningitic children to another matched group of known non-post-meningitic children while examining causal relationships, predictive measures, and ameliorative interventions.

Acute bacterial meningitis. Acute bacterial meningitis is an inflammation of the meninges (membranes covering the brain and spinal cord). Pus cells and bacteria in the cerebrospinal fluid provide positive clues to diagnosis. Three strains of bacteria are responsible for most cases: 1) meningococcus (sometimes called epidemic meningitis), 2) pneumococcus (a common cause of pneumonia), and 3) the influenza baccillus (erroneously named when it was thought to cause epidemic influenza).

Meningitis tends to occur with the greatest incidence in infants and young children, with the highest mortality rate and serious brain damage in the youngest ages. Modern therapy, including antibiotics and intravenous fluids, if started within the first day or so of illness, markedly reduce the seriousness of the disease. There are exceptions,

of course, but patients may be recovered after about ten to fourteen days.

The three bacterial species, which are the usual etiological agents, may be associated with less serious or minor respiratory illness in some children. The reason is unknown why some children get septicemia and meningitis while others seem to handle the infection without serious effects. H. influenza is the leading cause of acute meningitis in children under 3 years of age while the others lead in older children. Meningococcus tends to occur in large epidemics which occur about every ten years, but there are a few cases every year. Pneumococcus affects all ages every year.

Clinical features of meningitis, which is characterized by high fever, headaches, stiff neck and vomiting, are similar for these strains of bacteria. Therefore, accurate diagnosis requires examination of cerebrospinal fluid, which means medical attention (usually hospitalization) at the time of the illness. Early diagnosis and modern therapy have made a striking improvement in the prognosis. Whereas in the past, acute meningitis was usually fatal, for the past decade the mortality has dropped to 10-15% (Haggerty & Ziai, 1964).

The exact number of children in the United States who have acute meningitis each year is not definitely known. However, existing statistics estimate that about 20,000 children, under age 14, have the disease yearly (Haggerty & Ziai, 1964). Since accurate diagnosis requires a spinal puncture and bacteriological laboratory procedures, undoubtedly there are many cases that are not properly diagnosed and therefore not reported. Of the estimated 18,000 yearly survivors, many will have some degree of residual brain damage. Major neurologic sequelae are greatest among infants. An unknown number may have minimal residua. The nature of this mild damage and the extent to which it may influence the total effectiveness of the child as he develops are not fully understood.

The sequelae of acute bacterial meningitis. Literature on the residua from meningitis is rich but somewhat disquieting. A large proportion of the references deal primarily with the therapeutic possibilities for the acute episodes. This body of literature for the years 1945 through 1968 includes 134 entries which have been annotated and arranged in Appendix A of this report. Immediately following the annotated bibliography is an index to the sequelae mentioned in the articles. To dramatize for the reader the range of meningitic sequelae, the indexed topics are reported in Chart 1.

Chart 1

Topic Headings
Listed in the Index of
An Annotated Bibliography of
the Sequelae of Acute Bacterial Meningitis

Arachnoiditis
Arthritis
Asthma
Auditory impairment
Backache
Behavior disturbance
Brain damage
Coma
Convulsions
Death
Dementia
Developmental retardation
Dizziness
Emotional problems
Enuresis
Epilepsy
Extremity, defects in
Facial asymmetry
Fainting
Fatigue
Fever
Focal necrosis
Headache
Heart defect
Intelligency impairment
Kyphosis
Memory lapse
Mental depression
Mental retardation
Mongolism
Motor impairment
Muscle weakness
Nervousness
Neurologic disturbances
Organic defects
Orthopedic deformity
Poor concentration
Precordial pain
Psychic disturbances
Puberty-delayed or precocious
Reflex change
Self-consciousness
Skin disturbances
Sleeping difficulty
Speech impairment
Subdural effusions
Taste disturbance
Vestibular function, loss of
Visual impairment
Withdrawal

The notion of mild brain damage has attracted investigators from many disciplines, who have addressed themselves to educational aspects of what has been termed "minimal brain dysfunction", "Strauss syndrome", "learning disability", or "hyperkinetic syndrome". Clements (1966), Dunn (1965), Paine (in press), and others have discussed these concepts, their terminology, and the question of their unitariness and usefulness. A reasonable conclusion from such studies is that future investigations should move from general to specific considerations of such problems.

A review of studies focusing on sequelae of diagnosed acute bacterial meningitis would be pertinent. Hutchinson and Kovacs (1963) reviewed the English literature since 1949 on the long-term sequelae of purulent meningitis. Those studies agree on approximately 18% incidence of serious sequelae (mental retardation, auditory and visual defects, speech problems, seizures, and paralysis), but none reported a search for more subtle disruption of function which could result in school and social adjustment difficulties. Hutchinson and Kovacs also reported on their own study of 122 children treated for acute pyogenic meningitis. Psychiatric, neurological, encephalographic, and psychological evaluations were carried out on 41 children 2.5 to 7.5 years after their acute illnesses. "Children with sequelae tended to have several abnormal test results, the total number with neuropsychiatric and/or psychological sequelae being 11 (26%)." This finding suggests that their group of subjects may have included a sizeable number of children suffering from more subtle sequelae who were not identified in previous studies.

Subsequently, Johnson (1960) reported on the short-term effects of purulent meningitis on the mental development of children. The Vineland Social Maturity Scale was completed retrospectively on each child in order to obtain an estimate of pre-illness developmental status. Intelligence tests (Cattell Infant Intelligence Scale and Stanford-Binet Intelligence Scale) were administered one month post-illness and again three months post-illness. Of 100 cases, 3% were severely impaired physically and mentally, and 6% showed a drop of five or more quotient points from pre-illness to three months post-illness. These results raise some doubt about less serious sequelae in their group of subjects; however, the pre-illness measure of developmental status used was not designed to detect mild variations in function.

Kresky, Buchbinder and Greenberg (1962) studied neurologic residua after recovery from bacterial meningitis. Tests of intelligence indicated that ability was not impaired, yet the children tended to show clinical test evidence of "brain injury" and perform poorly in school.

While 13% of the subjects had serious deficiencies, at least 35% had problems which could be detected--some of which were minor and may even have predated the meningitis.

Dodge and Schwartz (1965) included a summary of observed neurologic sequelae in their investigation; the incidence for their 99 patients was 21%. They did not attempt to assess subtle problems.

Galloway (1966) found a similar incidence of serious sequelae (17%) in post-meningitic Scottish children. Again, no search was made for subtle deficiencies.

Summary. Each year, more than 2000 children under 14 years of age die from reported cases of acute bacterial meningitis, while an estimated 18,000 contract the disease but survive the illness. Of this annual toll of 18,000 children who now survive, approximately 18% suffer seriously disabling sequelae. Most studies have not attempted to evaluate the incidence of less apparent, yet critically important, educational aspects of post-meningitic sequelae. Those researchers who did investigate this area have swelled the number to over 25% of post-meningitic children who suffer residual handicaps of greater or lesser severity. Only one study (Hutchinson and Kovacs, 1963) used a variety of tests and observations in addition to general intelligence tests. None of the studies employed a control group.

The generally accepted view that if a child escapes serious and obvious sequelae, he is essentially "cured", must be challenged. Restoration to normal functioning may well be more apparent than real. Subtle deficiencies may be indirect, e.g., mild irritability may repel developing friendships yet not be detectable by a neurological examination. Or they may be direct, yet not become apparent until the child's adaptive abilities are placed under stress. For example, a slight impairment of visual-spatial skills in the pre-school child might go unnoticed, yet result in serious reading difficulties in first grade.

Two conclusions are implicit in the above discussion: 1) Severity of sequelae ranges along a continuum from very mild to profoundly severe; 2) Interdisciplinary study, involving physicians, educators, psychologists, and social workers is necessary to explore and remediate post-meningitic sequelae. Such studies might illuminate the current shadowy picture of perceptual impairment and "organic" behavior in the large, vaguely-defined group of children with learning problems.

Scope of the Project

From the outset, the study described in this report was conceived as an exploratory pilot study, or as it was frequently informally called, "a fishing expedition". Multidisciplinary groups from each of the four research communities were interested in problems of school adjustment and selected post-meningitic children as a clearly defined group of children who had most surely experienced prolonged high fevers in early childhood. As a prelude to more sophisticated large scale validation and prospective studies in each of the four locations, this preliminary "fishing expedition" set out to probe four clusters of problems.

First, it would be extremely valuable for the fields of education, child development, and medicine to inquire if children who have experienced meningitic infection do, in fact, also experience significantly more school adjustment problems than their matched peers who have not had meningitic infection. Perhaps data on post-meningitic children might provide research approaches to the much broader group of children characterized as having minimal brain dysfunction. But the dimensions of childhood behavior are almost limitless. This current study then was viewed as a pilot study to eliminate much of the chaff and to reduce the number of variables for study to workable size. The focal question was so important, and possible contributing variables were so limitless that this initial exploratory study had to be conducted.

Second, although multidisciplinary and multi-institutional research provides scientific opportunities for bold new approaches to broadly based issues, active cooperation of several different disciplines in four geographically separate communities does not generate spontaneously. Large scale research on a common school adjustment problem could be conducted in these four communities only through preliminary phasing of activities and cultivation of a joint research posture. A second cluster, then, centered about utilization and consent of the uncommonly rich human resources pool.

Third, a critically important aspect of this research project was viewed to be the development of some well-oiled machinery to insure implementation of results. Indeed, all research designs should build in an animation process to prevent research findings from being lost in the pages of periodical literature. Therefore, the scope of this project embraced, or perhaps even emphasized, research utilization. The research design, the data collection techniques, and data analyses reflect the overriding theme "to do something with whatever we get".

Fourth, another major facet of this exploratory project looked toward a consortium for future research on children. Large scale longitudinal studies bring authority and maturity to observations on the education of children. This pilot study intended to plant some seeds.

To conduct the study, researchers at Vanderbilt University and Metropolitan Nashville Public Schools formed a local research group to identify and study 25 primary grade level children known to be post-meningitic, comparing them on a variety of measures with matched controls who had not suffered confirmed severe high fevers. The field study in Nashville was scheduled for two years while researchers at the other three centers (Atlanta, Memphis, and New Orleans) were to serve as participant-observers, evaluating forms, sampling procedure, and generally monitoring the conduct of the pilot study. Through close concert, the participating observers contributed their professional skills and experience; and all four centers attempted to avoid procedural pitfalls. It was agreed that as the pilot work neared completion, the four research communities would determine plans for validation and prospective studies.

Objectives of the Project

This pilot project established three goals as base lines upon which to design validation and prospective studies:

1. A study of the nature and extent of school problems and emotional handicaps affecting post-meningitic children during their first three years in school.
2. The exploration and delineation of screening procedures and pre-school treatment for the prevention of school adjustment problems among post-meningitic children.
3. Throughout the course of the proposed research, representatives from educational and medical facilities in four adjacent cities will be involved in and advised of the study to prepare for subsequent field experimentation based on the findings.

Significance of the Project

This project studied a group of children known to have had high fevers, analyzed their deficits, and explored pre-school preventive and remedial techniques to mitigate school problems. Inferences based on the performance of this small group of children who had experienced acute bacterial meningitis should await validation on a much larger sample in several different research communities. But if

validation confirms and substantiates the findings of this pilot study and the existence of school problems can be confirmed, if some indication of pre-school preventive and remedial techniques can be designed, the educational significance of this project will indeed be exciting. Similarly, the significance in child health and medical research will be immediate. Conclusive evidence that post-meningitic children have sequelae which interfere with school success would effect an undeniable demand for augmented research into Hemophilus influenza vaccines and other preventive measures for pneumococcus and miningococcus bacteria.

This pilot project through its dissemination activities as well as its findings should stimulate and foster concerted activity into the prevention or early identification of school adjustment problems before they mature and require remediation. Perhaps research-oriented educators will explore methods of intervention which would maximize the handicapped child's school adjustment in addition to testing methods for assuaging his school problem.

Another vital aspect of the project was directed toward developing a cohesive network of multidisciplinary research teams in geographically separate research communities. Testimony for the significance of this feature is provided by two distinctly separate studies made possible only through the creation of these collaborative research communities by this project. First, a study of children enrolled in perceptually handicapped classes in the four cooperating communities was made; and the results of this peripheral study will soon be reported in the literature. Second, a study of the sequelae of H. influenza meningitis was completed using siblings of post-meningitic patients as controls; and this research will soon be published in the professional literature. These are two tangible examples of the ripple effect of the project, but perhaps more important is the exchange of professional publications, visiting lectureships in the schools and medical colleges, and the professional experiences of various disciplines attacking problems of mutual concern.

CHAPTER II

METHOD

As plans among the four research communities began to take form, it was agreed that Nashville and Vanderbilt University would conduct the two year pilot study while the remaining three research communities served as participating observers. All four centers would cooperate in building the research strategy, in designing the data collection forms, and in the general review of the research project.

The pilot study opened with organizing an effective local research group in Nashville and consolidating details with the other three research communities. An exhaustive literature search, resulting in an annotated bibliography, provided few specific directions but offered some general guides. During this initial phase, data collection forms were compiled; and a planning conference of all four centers convened to review progress in general and the forms in particular. The second year's phase concluded identification and testing of 25 pairs of subjects, followed by an evaluation conference to examine preliminary findings, seeking courses for subsequent action.

In the following paragraphs methods and procedures will be presented in detail under sub-section headings of: The Multidisciplinary Effort, Development of Data Gathering Forms, Subjects, Data Collection, and Data Analysis.

The Multidisciplinary Effort

In all four research communities, public schools and medical schools share a long history of applied research on the problems of children. The educators recognize the precursors of school problems may be recognized and mitigated prior to school entrance; medical specialists recognize the child's school adjustment as one phase of total health. So their interests merge and manifest themselves, in this instance, in cooperative effort.

The resources available through such cooperative effort became readily apparent. Consider the pool of personnel. Serving as participant observers were: from Atlanta - a pupil personnel director, a special education supervisor, and a child psychiatrist in preventive medicine; from Memphis - the director of special education and two pediatric neurologists; and from New Orleans - the director of special education and a pediatric epidemiologist. These administrators and scientists gave freely of their time by directing careful and prompt attention to

correspondence, attending conferences, and meeting with local researchers--all without compensation--all freely in the interests of the study.

Based in Nashville, a local research group was assembled consisting of: research director for the public schools, a special educator, a physical educator, two clinical psychologists, two child psychiatrists, two pediatricians, a social worker, and a research assistant.

Bringing all these specialists to bear on the school adjustment of post-meningitic children has not been a task--it has been the reward.

Development of Data Gathering Forms

The general research strategy was to collect an enormous amount of data on 25 matched pairs of subjects and pursue a system of analysis to eliminate less profitable information. With validation and prospective studies in mind, heavy emphasis was given to insure ease in examining and reporting. That is, forms to gather information from teachers were developed by teachers and written in teacher talk. Forms developed for pediatricians to offer pediatric history and examinations were developed by pediatricians and written in pediatric style. The same philosophy framed forms developed for psychological testing, neurological examinations, psychiatric examinations, and home interviews.

A wide variety of other data collecting systems were examined in the development of the forms for this post-meningitic study. Among them were: The Collaborative Study of Cerebral Palsy, Mental Retardation, and Other Neurological and Sensory Disorders in Infancy and Childhood (National Institute of Neurological Disease and Blindness, 1966.), the Head-Start physicals (the encephalitic study), and research at the University of Michigan conducted by John McDermott.

From the many revisions circulated and discussed among representatives from the four research communities, the data collection forms melded into the following code sheets:

00 - Perceptually Handicapped Children Study
This form was developed to collect data on all children enrolled in classes for perceptually handicapped in the city school systems of Atlanta, Memphis, Nashville, and New Orleans. Special Education administrators in each of these cities forwarded the forms to teachers of perceptually handicapped classes who, in turn, completed the information for each child enrolled in those special classes. Viewed as

a peripheral study, results are discussed in a separate interim report. Examination of the form appearing in Appendix B reveals that it includes questions about many of the characteristics commonly attributed to perceptually handicapped children phrased in terms of classroom behavior and also inquires as to the availability of information for the teacher.

10 - Home Interview
This instrument (See Appendix B.) attempts to introduce objectivity into an informal, pleasant conversation about child rearing practices and the impact of meningitis on the child in his family. Questions were designed to collect data on family constellation, familial life style, and child rearing practices. Generally, the technique inquired about the performance of the subject along various dimensions as compared with his sibs, how the parents felt about this performance, and how the parents reacted to it.

School Adjustment Forms
21 - General Information
This brief form (See Appendix B.) to be completed by the teacher collected vital information about the child and his scholastic adjustment. On this form, the teacher rated the child's overall school adjustment.

22 - Psychological Assessment
On this form was recorded the performance of subjects on various standardized psychological tests, specifically the Illinois Test of Psycholinguistic Ability, the Marianne Frostig Developmental Test of Visual Perception, the Columbia Test of Mental Maturity, and the Peabody Picture Vocabulary Test. This form appears in Appendix B.

22 - Part II
Performance of the subjects on a variety of experimental testing situations was recorded on this form. By reference to Appendix B it will be noted that such variables as finger tapping, pegboard, beadstringing, walking a balance beam, a paired associate learning task and a nine point rating scale to be completed by the examiner were included.

23 - Teacher Appraisal
This form is a duplicate of Form 00, Perceptually Handicapped Children Study, with the exception of the last nine items on Form 00 which were deleted, since they related to the teacher's familiarity with the medical history of her students. (See Appendix B.)

24 - Nine Point Social Desirability Scale
This item of data collection required the teacher to complete a nine-point forced choice rating on each subject along ten separate dimensions. Each of the ten dimensions was broken into nine categories identified by a descriptive statement. The form to be completed by the teacher and the collating form for key punch purposes appear in Appendix B. The Nine Point Scale of Social Desirability, constructed by the Director of Research for Metropolitan Nashville Schools, has been used extensively in other research; but final validation has not been published.

25 - Peer Nomination
In order to obtain another view of the subjects' performance on the ten variables in Form 24, the content from each item was rephrased and constructed as a picture nomination technique for classmates of the same sex as the subjects. Classmates of the same sex as the subjects were individually presented with a placard displaying snapshots of all the same sex children in the class. They would then be asked to point to the child who manifested the variables most strongly and then to the child who manifested the behavior least noticeably. The examiner would then indicate on the form whether the subject had been identified as manifesting or not manifesting the variable, or whether the child providing the information had not selected the subject. This form appears in Appendix B.

26 - Speech and Hearing Analysis
In order to obtain an objective assessment of the subjects' performance on speech and hearing tasks in quiet and with background noises, the Goldman-Fristoe Filmstrip Articularion Test and the Goldman-Fristoe-Woodcock Test of Auditory Discrimination were administered. Form 26 records the

subjects' performance on these tasks and on the Durrell Analysis of Reading Difficulty, a standardized diagnostic reading test. This code sheet appears in Appendix B.

Medical Examination Forms

31 - Pediatric

The pediatric phase of the medical examination was divided into two parts. Part A provided a medical history and was developed so that these data could be collected by interviewers with no medical training and with little introduction to this interview form. In practice for this research, Part A was administered by clerical staff. Part B encompasses a standard pediatric examination with special emphasis on those aspects believed especially pertinent to sequelae of prolonged high fevers. No laboratory or complex procedures were instituted, and the physicians cooperating in this study held convenience and practicality as primary guides. The pediatric examination appears in Appendix B.

32 - Pediatric Neurological

As the review of related research and the annotated bibliography in Appendix A indicate, neurological deficit ranks high as a residua of acute bacterial meningitis. Therefore, special emphasis and concern were devoted to the development and administration of a standardized pediatric neurological examination. Electroencephalography was dismissed as being too time consuming and threatening for the young subjects to justify its qualified results. Since the pediatric neurological was to be administered by the same examiner on matched pairs of subjects, reservations about age-related performances were met and fully accepted by the review board of pediatric neurologists and other pediatric specialists on the panel of participating observers. Consensus of professional practice received special support in this case, since examinations were done blind, that is, without prior designation of control and experimental subject. The pediatric neurological appears in full in Appendix B.

33 - Psychiatric Evaluation
Since personality appraisal is notoriously subjective, a great deal of time and hard work went into the development of this objective psychiatric evaluation. Various members of the Vanderbilt University child psychiatry staff proposed and objectified items which in turn were examined, modified, and finally approved by the participating observers. Following this, two child psychiatrists observed and independently rated psychiatric interviews with this form and later met to reconcile their observations. This practice was continued over numerous interviews until consensus was reached on each item and the participating observers were satisfied with the objectivity. In this case, again, the merits of standard professional practice were strengthened by administering the form through blind interviews, that is, status of the subject as control or experimental was unknown to the examiner. The psychiatric evaluation appears in Appendix B.

34 - Visual
In order to obtain an objective assessment of the visual performance of the subjects, the Keystone Telebinocular was employed as the testing instrument. An ophthalmological examination with dilation of the pupils was overruled by the participating observers and local research group due to the scheduling problems, examining time requirements, and potential threat to the young subjects. It is worth noting at this point that the telebinocular is broadly accepted as an excellent device for screening visual problems, and medical representatives felt that it was superior to other forms of vision testing for purposes of this study. Telebinocular examination provides the special advantage of requiring an examiner with only modest training. Code sheets for the visual exam appear in Appendix B.

Data collection forms underwent a series of revisions and were tentatively approved in the spring conference of all four research communities conducted at Nashville in May, 1968. Modifications suggested from the conference were incorporated into the forms, and forms were at length approved by all four research communities. Finally, all forms were reviewed and approved by the U.S. Office of

Education prior to implementation.

Subjects

Since this pilot study of the school adjustment of post-meningitic children was directed toward eventual pre-school intervention, the pool of subjects was restricted to primary age students. Logically, the younger the subjects studied, the more closely they would resemble pre-school children. Only children living in Metropolitan Nashville who had laboratory confirmed acute bacterial meningitis were eligible for the study. Children who were unable to attend regular school or who were placed in special education classes were also excluded from this study, since the focus was on the child considered medically cured, who was thought to have no sequelae and who was considered competitive enough to participate in the regular school program. This research study was clearly interested in minimal, heretofore ignored, sequelae of acute bacterial meningitis.

From an examination of records of the major hospitals in Metropolitan Nashville, from responses to an inquiry forwarded to pediatricians in the area, and from public health service records, a potential pool was developed of subjects who met the following criteria:

1. Meningitis must have occurred at least two years prior to entering school.
2. Child was presumably enrolled in a regular class in the first three grades of school.

These names were then given to Metropolitan Nashville Pupil Personnel Services for location in their pupil enrollment files. When children were identified through hospital records and located through Metropolitan Nashville school files, one of the local research group personnel visited the child's home to discuss the project with the family and obtain a signed statement of informed consent. A facsimile of this letter appears in Appendix B.

Of the 62 cases thought to meet requirements of age, time of occurrence, and residence, only 27 could be located in regular school classes. The breakdown on the cases was as follows: 1 had died; 29 could not be located or had moved prior to the study; 2 were institutionalized; 2 were assigned to special education classes; 2 were located but declined to participate; 1 did not attend school; therefore, 25 post-meningitic subjects were included in all phases of the study.

After experimental subjects had been identified and permission for their participation obtained, contacts from the Metropolitan Nashville Pupil Personnel Services were

made with the child's principal and with his teacher to advise them of research being conducted on the health of school children. No mention of meningitis or other complicating conditions was made at that point. Teachers were requested to circulate to all children of the same sex as the experimental subject enrolled in their class forms advising parents that a study on the school health of children was being conducted and requesting them to provide their occupational and educational status.

Information on the forms relating to education and occupation of parents permitted selection of control subjects matched by the Hollingshead Two-Factor Index of Social Class, age, sex, and classroom membership. When more than one potential control was available to match with an experimental subject, selection was purely random. Research assistants from the local research group also called on families of potential controls to explain in detail the nature of research activities and to obtain a signed statement of informed consent. Chart 2 depicts a flow chart describing identification and recruitment of subjects.

Reference to Table 1 suggests that the pairs of experimental and control were closely matched on the criteria of age, sex, and social class. Classroom membership was a requisite for eligibility. Also displayed is the type of laboratory confirmed bacterial meningitis affecting each experimental subject. It will be of special interest to physicians to observe that in this sample as well as the national population, H. flu. is by far the most common etiologic agent of meningitis.

As is usually the case in conducting research with school age children, many unfortunate situations were encountered. In several cases, one of the parents felt strongly that their child had problems and wanted to participate in the study, but the other parent was adamant in refusing. In one case, a post-meningitic child was reported by a mather and teacher as doing very poorly in school, the mother was delighted at the prospect of having her youngster thoroughly examined; but when the investigator appeared for an interview, the father remained hidden in the back of the house shouting insults and threats at the disappointed interviewer. Several other cases were encountered in which parents assumed a rigidly defensive role, stating vehemently that they did not want anyone making a "guinea pig" out of their child. Interestingly enough, almost all these suspicious refusals to participate were from the same school district in which the school principal was antagonistic toward research.

Chart 2

Flow Chart Depicting Steps in Recruiting and Gathering Data on Subjects

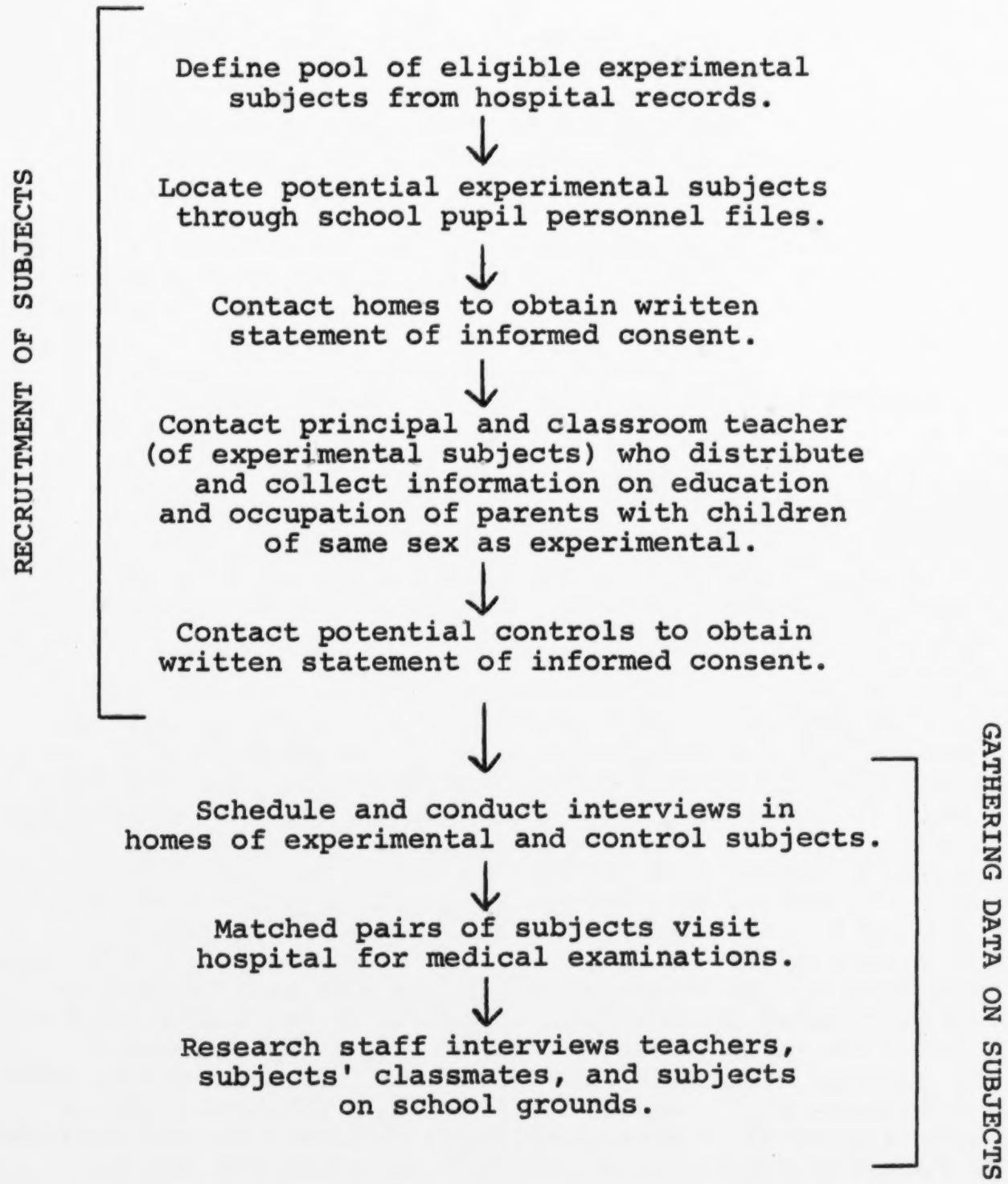
RECRUITMENT OF SUBJECTS
Define pool of eligible experimental subjects from hospital records.
Locate potential experimental subjects through school pupil personnel files.
Contact homes to obtain written statement of informed consent.
Contact principal and classroom teacher (of experimental subjects) who distribute and collect information on education and occupation of parents with children of same sex as experimental.
Contact potential controls to obtain written statement of informed consent.
GATHERING DATA ON SUBJECTS
Schedule and conduct interviews in homes of experimental and control subjects.
Matched pairs of subjects visit hospital for medical examinations.
Research staff interviews teachers, subjects' classmates, and subjects on school grounds.

Table 1

Description of Matched Pairs of Subjects by Grade Level, Sex, Age at Interviews, Socioeconomic Level, Type of Meningitis Affecting Experimental Subjects

Pair No.	Grade	Sex	Age in years and months		Socioeconomic Class		Meningitis affecting
			Exp.	Cont.	Exp.	Cont.	Exp.
1	1	M	6.4	6.11	IV	IV	Pneumo.
2	1	M	6.8	6.7	IV	IV	Pneumo.
3	1	M	6.10	7.2	II	II	Pneumo.
4	1	M	6.10	6.5	IV	IV	H. flu.
5	1	F	6.11	6.1	I	I	H. flu.
6	1	M	6.11	7.0	IV	IV	H. flu.
7	1	F	7.1	6.8	III	III	H. flu.
8	1	F	7.0	7.3	III	III	Pneumo.
9	1	F	7.3	6.6	IV	IV	Pneumo.
10	1	F	7.5	7.1	III	III	Meningo.
11	2	F	7.6	7.8	I	I	H. flu.
12	2	M	7.6	6.6	IV	IV	H. flu.
13	2	M	7.8	7.7	I	I	Meningo.
14	2	M	7.9	7.8	IV	IV	H. flu.
15	2	M	7.11	8.4	V	V	Meningo.
16	2	M	8.1	7.10	V	V	Meningo.
17	2	M	8.2	7.8	I	I	H. flu.
18	3	M	8.3	9.6	IV	IV	H. flu.
19	3	M	8.4	9.3	IV	IV	H. flu.
20	3	F	8.5	8.8	IV	III	H. flu.
21	3	F	8.10	8.7	IV	IV	H. flu.
22	3	M	8.11	8.7	IV	IV	H. flu.
23	3	F	8.11	8.4	III	IV	H. flu.
24	3	M	9.4	9.9	IV	IV	Meningo.
25	3	M	9.8	8.9	IV	IV	H. flu.

$\bar{X}$ (Exp.) = 7 yrs. 10 mos. s (Exp.) = 11 mos.

$\bar{X}$ (Cont.) = 7 yrs. 8 mos. s (Cont.) = 12 mos.

Data Collection

It is of primary import for research to objectify and reduce examiner bias through utilization of standardized procedures. Therefore, data were gathered in a consistent order, under comparable or identical conditions, in the same sequence of testing, and whenever mechanically possible, without prior knowledge by examiner of which subjects were control or experimental. In all instances data sheets were checked by the local research group for missing data immediately following each step of data collection.

Home Interview. Using Form 10 (See Appendix B.), home interviews were conducted in subjects' homes, preferably with both parents present at the interview. However, convenience to parents was the first consideration; and on all occasions the mother was present to provide pertinent information. Since no analysis was planned to compare information provided by one parent to that provided by both parents, convenience to the family outweighed the desirability of having both parents provide information. Personal interviews were preferred over forms to be completed without guidance at home by the parents because wide variations in parental educational background presented severe limitations to that technique. Moreover, the home interview was in keeping with the effort to glean information. The interview technique of data collection was field tested on children from the potential subject pool who were ineligible due to special class placement or other limitations. Time required for a home interview approximated forty-five minutes; but with few rare exceptions, the families were so responsive and interested in activities at the university that the interview took somewhat more than one hour.

Medical Examination. Experimental and control subjects were brought in matched pairs by their parents to the Vanderbilt University Mental Health Clinic for medical examinations to be conducted at the same time. Since these children were in the same school classroom, some elements of convenience and emotional security accrued for the subjects and their parents. Data collection forms used were Form 31-Pediatric, Form 32-Pediatric Neurological, and Form 33-Psychiatric. (See Appendix B.)

The pediatric and pediatric neurological were administered in one session by a pediatrician with special training and interest in pediatric neurology. Psychiatric examination was performed by a child psychiatrist. The psychiatric examination required one hour, and the combined pediatric and pediatric neurological required thirty minutes. Therefore, both examinations were phased so that the psychiatrist randomly selected one subject from the waiting room area without prior knowledge of experimental or

control subject and took one child into a play interview area for interviewing. The other subject remained in the waiting room for thirty minutes until the pediatrician called him into the examining room for the pediatric and pediatric neurological phase. Therefore, both examiners concluded their first exams at the same time and changed subjects in the waiting room. Total examination time for each subject was ninety minutes, although total time allotment was two hours.

School Adjustment Forms. Most data collecting was conducted on the premises of the public school attended by each respective pair of subjects. Some information was supplied by the teacher at her leisure; some was gathered from the entire class in the classroom; some was collected in spaces routinely available in schools for individual testing; and other information was collected in a mobile laboratory adapted specifically for this research. The several steps in this phase of data collection will be discussed sequentially in the paragraphs below.

1. Teachers had been alerted by their principals that a study of childrens' health was being conducted, and they had cooperated in distributing and collecting forms reporting parental occupation and education for determining the Hollingshead two-factor index of social position. They were then advised that two children had been selected for intensive study and were requested to complete Form 21-General Information, Form 23-Teacher Appraisal, and Form 24-Nine Point Social Desirability Scale (See Appendix B.) for these two children. Although most teachers were genuinely interested in the nature of the research, only a few insisted on being fully informed about the central purpose of the study. In these few instances, the researchers attempted to remain non-specific, and every effort was made to insure a blind judgment by the teacher.

2. Peer nomination forms required each child in the classroom of the same sex as the subjects to rank the members of the class along the same ten dimensions covered by the Nine Point Social Desirability Scale. Since many of these school children were quite young, a picture nomination technique was used rather than identification by name. To accomplish the picture nomination situation, a frame was constructed to be held in the laps of three children while a snapshot was taken by polaroid camera. Snapshots were then cut into small individual pictures which were arranged alphabetically on a cardboard grid. Each class member of the same sex as the subjects responded to the questions from the peer nomination form by pointing to a picture. A research associate served as examiner and recorded the nominations of the subjects' classmates on Form 25-Peer Nomination (See Appendix B.). Time required varied with class

enrollment size but ranged from forty-five minutes to two hours.

3. Testing of individual subjects on the school grounds was administered in whatever facilities were available for that purpose in each school. The advent of guidance and counseling personnel in schools made necessary the provision of quiet, private interviewing rooms. Therefore, space for individual testing presented no serious problem. Tests were sequenced within two sessions in the same order. First session: 1) ITPA, 2) Preferred Hand, 3) Hagin Test, 4) Hand Dynamometer, 5) PPVT, and 6) Grooved Peg Board; Second session: 7) CTMM, 8) Finger Tapping, 9) Frostig, 10) Bead Stringing, 11) Paired Associates Learning Task, and 12) Rating Scale. Performance on the Rating Scale was recorded on Form 27 (See Appendix B.). All tests were administered by the same trained examiner, and each session required approximately ninety minutes. The variety of tasks presented reduced test fatigue to a minimum.

4. The final phase of data collection was conducted in a van modified to serve as a mobile laboratory. The van was owned by Peabody College and made available for this research without charge. Complete with interior sound treating, heating, electrical outlets, and appointments, the mobile laboratory could be driven to a school site and quickly connected to electrical outlets.

Each subject left his classroom and entered the mobile laboratory for testing. A research assistant administered tests in the following order: from Form 22, Card II, performance on the Balance Beam; Form 26, Card IV, the Goldman-Fristoe-Woodcock Test of Auditory Discrimination; Form 26, Card III, the Durrell Analysis of Reading Difficulty; Form 34, Visual Examination using the Keystone Telebinocular test; and Form 26, Card I, the Goldman-Fristoe Filmstrip Articulation Test (See Appendix B.). Time required for examining in the mobile laboratory was approximately forty-five minutes.

Complete print-outs of all categorical raw data are presented under appropriate form headings in Appendix C.

CHAPTER III

DATA ANALYSES AND FINDINGS

The questions asked of the data on the 50 subjects were simple: Does the school adjustment of this group of post-meningitic children differ from their matched controls; and, if so, in what respects? But the multiplicity of variables complicated the search for simple answers.

Most of the multidisciplinary group of participating observers had certain specific questions. Some were more interested in profiles of matched pairs across the spectrum of discriminating variables than in mean differences. The home interview, it was agreed, should be viewed as a structured conversation, to be quantified for reference but not tested statistically. All other variables should be sifted statistically to glean clinical-remedial guidelines. Also, to search for mathematical relationships which might elude clinical-statistical probing, all data would be subject to factor analysis. This would be purely an empirical pursuit, without regard for weighting variables. Two outside consultants, representing differing philosophies of data analysis, concurred with these lines of departure and cautioned strongly regarding generalizations drawn from 1000 variables on each of only 50 subjects.

To begin, data were punched on cards and print-outs were checked against data collection forms to reduce mechanical errors.

Clinical-Statistical Approach

To thin out the mass of information collected on each subject, two-tailed "t" tests were carried out on all variables with continuous distributions; and results are displayed in Appendix D. Since this was a pilot study, a "fishing expedition", variables with a "t" test of $p \leq .20$ were considered to have some value and were gleaned out for further examination. Each pair of experimental and matched control subjects were compared on these variables in terms of which subject of the pair performed more poorly than his matched subject on each of these observations of behavior. These frequencies, together with results of chi-square tests for significance, appear in Table 2.

Several variables reported in Table 2 illuminate the central question regarding the school adjustment of these two groups of children. Experimental children received a lower scholastic rating from their teachers, had more poor ratings in academic areas, read on a lower reading level at

Table 2

Comparison of Matched Pairs of Subjects on Selected Variables

Form, Card	Column	Description of Variable	Performed Poorer than Matched Subject E	C	Chi-Square Value	Probability Value
21	14	Scholastic Evaluation	12	2	7.14	.01
21	15-16	Prin. area of difficulty	16	3	8.8	.01
22,I	8-10	ITPA Aud. Voc. Automatic	18	6	6.0	.02
22,I	11-13	ITPA Visual Decoding	18	6	6.0	.02
22,I	14-16	ITPA Motor Encoding	13	10	.38	.70
22,I	17-19	ITPA Aud. Voc. Association	18	6	6.0	.02
22,I	20-22	ITPA Vis-Motor Sequencing	15	10	1.0	.50
22,I	23-25	ITPA Vocal Encoding	18	6	6.0	.02
22,I	26-28	ITPA Aud. Voc. Sequencing	16	8	2.66	.20
22,I	29-31	ITPA Vis-Motor Association	18	6	6.0	.02
22,I	32-34	ITPA Aud. Decoding	20	4	10.6	.01
22,I	35-37	ITPA Total	21	4	11.56	.01
22,I	46-48	Frostig Form Const.	12	7	1.3	.30

Table 2 (continued)

Form, Card	Column	Description of Variable	Performed Poorer than Matched Subject E	C	Chi-Square Value	Probability Value
22,I	49-51	Frostig Pos. in Space	13	3	6.2	.02
22,I	55-57	Frostig Percep. Quotient	17	7	4.16	.05
22,I	70-72	PPVT I.Q.	20	4	10.6	.01
22,II	29-30	Hand Dynamom.-other	14	10	.66	.50
22,II	36-39	Bal.Beam, Forward	14	2	9.0	.01
22,II	61-62	Fearfulness	15	7	2.9	.10
23	18	Poor gen. coord.	5	1	2.66	.20
23	19	Unsteady gait	7	0	7.0	.01
23	21	Reads lower	5	1	2.66	.20
23	23	Poor writing	8	3	2.2	.20
23	24	Poor self concept	6	3	1.0	.50
23	26	Careless with work	7	1	4.5	.05
23	28	Achievement uneven	7	1	4.5	.05
23	30	Tics or jerky movement	6	1	3.6	.10
23	31	Little or no originality	8	2	3.6	.10
23	38	Very Aggress.	6	3	1.0	.50

Table 2 (continued)

Form, Card	Column	Description of Variable	Performed Poorer than Matched Subject E	C	Chi-Square Value	Probability Value
23	40	Easily anger.	5	1	2.66	.20
23	41	Seldom volun. to work	6	3	1.0	.50
23	44	Underachiever	8	4	1.32	.30
24	12	Popular or unpopular	14	6	3.2	.10
24	13	Takes dir. well or not	13	5	3.54	.10
24	14	Faces new sit. or fearful	14	6	3.2	.10
24	15	Motivated or unmotivated	17	4	8.04	.01
24	16	Always has fun or never	12	4	4.0	.05
24	17	Well coord. or not	14	6	3.2	.10
24	20	Self-confid. or not	15	5	5.0	.05
25	46-47	Always falls	13	8	1.2	.30
25	58-59	Gets mad at what dislikes	15	7	2.9	.10
26,I	61	Artic. v initial	8	1	5.44	.02
26,I	71	Artic. x/o medial	5	0	5.0	.05
26,III	22	Vis.Memory part	6	2	2.0	.20

Table 2 (continued)

Form, Card	Column	Description of Variable	Performed Poorer than Matched Subject E	C	Chi-Square Value	Probability Value
26,III	24	Vis.Memory station	9	2	4.4	.05
26,III	28	Vis.Memory secure	8	1	5.44	.02
26,III	37-39	Ceiling para.	9	4	1.92	.20
26,III	40-42	Time on para.	16	9	1.96	.20
26,IV	45	Noise-sign	10	4	2.6	.20
26,IV	56	Noise-pail	9	3	3.0	.10
26,IV	60	Noise-make	12	5	2.88	.10
26,IV	68	Noise-catch	6	1	3.6	.10
26,IV	71-72	Error total Quiet	14	6	3.2	.10
31,I	31	Age when talked	6	1	3.6	.10
32	11	Arms ext. put where	8	5	.68	.50
32	12	Arms ext. drop	10	2	5.32	.05
32	14	Flex. at elbows	9	4	1.92	.20
32	15	Drop 1 arm	13	3	6.2	.02
32	16	Irreg. pos. of wrist, etc.	9	4	1.92	.20
32	17	Whirl-planted	6	9	.6	.50
32	23	Abnormal move tremor	2	3	.2	.70

Table 2 (continued)

Form	Column	Description of Variable	Performed Poorer than Matched Subject E	C	Chi-Square Value	Probability Value
32	27	Stand 1 foot	13	6	2.58	.20
32	35	Coord. Fing.-thumb	12	6	2.0	.20
32	37	Diodoch.-ind. fing.-thumb	4	9	1.92	.20
32	39	Assoc. moves symmet.	12	6	2.0	.20
32	54	R-L Confus. on examiner	12	5	2.88	.10
32	59	Two stim. discrim.	9	3	3.0	.10
32	62	Head moves-returns	10	3	3.76	.10
32	63	Head moves-ms.be held	5	0	5.0	.05
33	26	Gross motor coord.	7	0	7.0	.01
33	35	Distractibil.	7	0	7.0	.01
33	36	Perseveration	6	2	2.0	.20
33	38	Communication	7	1	4.5	.05
33	48-49	Kinds manip.	9	6	.6	.50
33	51	Genet. level functioning	7	2	2.76	.10
34		Total over- and underconverg.	10	3	3.76	.10

$\bar{X}$ (Exp.) = 10. s (Exp.) = 4.53

$\bar{X}$ (Cont.) = 4.04 s (Cont.) = 2.61

a slower rate, and had an uneven academic profile. Other school related behaviors, such as motivational level, distractibility, gait disturbances, and gross motor coordination suggest that the post-meningitic children did indeed experience more school adjustment problems than did their matched controls.

A third step in the clinical-statistical approach was to factor analyze all variables found to have a chi-square probability of $p \leq .10$. Both Varimax and Promax rotations were made; and, in every case, the Promax factors were sufficiently correlated to reject the possibility of using uncorrelated factors in representing the data. Tables presenting the factor structure and correlations between factors for this factor analysis are exhibited in Appendix E.

The multivariable factors which emerged are displayed in Table 3. Factor A, which may be labelled "Instructional Receptivity", draws all its variables from the individual testing procedure, notably ITPA, Frostig, and PPVT scores. Auditory-Vocal Automatic and Vocal Encoding subtests as well as the ITPA total score suggest that experimentals have difficulty in verbal organization and expression. All of the variables in Factor A measure varying aspects of association ranging from the ability for expressing one's ideas in spoken words, to predicting future events from past experience, to comparing objects of different sizes and shapes, to associating the stimulus word with the correct picture. Obviously, impairment in this important domain would interfere substantially with instructional receptivity on the part of a student.

Factor B introduces another cluster of school-related variables. This factor might be labelled "Student Image", since it is weighted very heavily by the teacher's judgment of whether the subjects appear to be good students. Included in this factor are evidences that the experimental subjects have difficulty in getting along, that they are less popular and less able to face up to new situations; that they lack motivation and self-confidence; and finally, that they are poorly coordinated physically. From one view, Factor B characterized students' general personality; is he energetic, enthusiastic, spontaneous, and popular--or is he hesitant, apprehensive, a little difficult in social contacts, and slightly inept?

Factor C, "Response to Extra-Ocular Movement", and Factor E, "Response in Visual Memory", are two-variable factors in which each pair are derived from the same test. Consultation with a pediatric neurologist raised questions regarding sensitivity and overlapping measures, since they drew from the same pool of observations. Factor C and Factor E are indeed puzzling. They may suggest, as other

Table 3

Factors Identified Through Clinical-Statistical Approach

Factors	Variables		
	Form, Card	Column	Description of Variable
Factor A Instructional Receptivity	22,I	8	ITPA Auditory-Vocal Auto.
	22,I	23	ITPA Vocal Encoding
	22,I	35	ITPA Total
	22,I	46	Frostig Form Constancy
	22,I	55	Frostig P.Q.
	22,I	70	PPVT I.Q.
Factor B Student Image	24	12	Popular, gets along well
	24	14	Faces up to new sit.
	24	15	Motivated
	24	17	Well Coord. physically
	24	20	Self-confident
Factor C Unknown	32	62	Head moves with EOM-after reminder
	32	63	Head moves with EOM-held
Factor E Unknown	26,III	24	Visual memory-station
	26,III	28	Visual memory-secure
Factor F Gross Motor Coordination	22,II	36	Balance Beam-forward
	33	26	Gross motor coordination
Factor G Fine Motor Coordination	21	15	Area of academ. diff.
	32	54	R-L confusion on examin.
Factor J Motor Coordina.	23	19	Unsteady gait
	32	59	Two-stimuli discrim.

single variables have, an impulsive response set, or they may be artifacts.

Several factors point to the capacity for neurological differentiation. Factor F, "Gross Motor Coordination", includes observation of the subject's coordination on the balance beam and in the interview by psychiatrist. Factor J, "Motor Coordination", loads on gait disturbance and on poor ability to discriminate two stimuli. Factor G, "Fine Motor Coordination", confirms the rich store of previous research relating reading problems with visual motor problems.

Factor Analytic Approach

It was agreed that a second approach for examining the data would be purely factor analytic. Due to the large number of variables, more than 1000 on each subject, it was decided that factor analytic reduction to a smaller subset of variables accounting for most of the variance in the total set of variables was necessary. Factor analyses in which variables outnumber subjects twenty to one are outside classical practice, but the irregularities were recognized and absorbed in the quest for purely empirical clues in the data. This procedure also assumes that any dimension of sufficient importance to warrant examination by this study is represented by several variables and would, therefore, appear as a factor. Only one variable, I.Q., was deemed to be of sufficient independent importance to be included in the study regardless of its loading on any factor.

The variables naturally fell into four groups: those from the area of medicine where, if significant differences were found, physicians would be most interested in the results; results of speech and hearing tests, where the staggering number of items demanded reduction; school variables, where, if significances were found, the interest would be greatest upon the part of educational researchers and teachers; and psychological variables of interest to those in this area. Since it would be difficult to interpret a factor which had loadings for variables across these four areas, and since each area was oriented toward a different specialist who might be reading the report, it was decided to factor the four sets of variables independently.

Each of the four factor analyses was conducted in the same manner. The variables were correlated by the product moment formula, and the resulting matrix had all principal components with eigenvalues greater than 1.0 extracted and rotated. Both Varimax and Promax rotations were made. In every case except one, the Promax factors were sufficiently correlated to reject the possibility of using uncorrelated

factors to represent the data. Tables in Appendices F, G, H, and I present the factor structures (correlations between variables and factors) as well as the correlations between the factors for each factor analysis.

Factor scores for each subject were then determined. These were calculated by identifying the salient variables loading a factor in each matrix and adding these variables together. To avoid the possibility of differential contributions to the factor scores from differences in metric, each variable was converted to a Z score. These Z scores were then summed across the defining variables to give the factor scores. Simple summation across salient variables was selected instead of a weighted summation since it was felt that procedures based upon weighting individual variables would be unstable due to the small sample of subjects. With this small sample size, only decisions as to whether or not the variable was related or unrelated to the factor appeared warranted.

It was, of course, possible that the same factor could appear in several separate analyses. For this reason, the factor scores from the four different factor analyses were correlated with each other. This correlation matrix is given in Appendix J. Factors were eliminated 1) which were constituted by only one item, 2) which had alpha reliabilities below .80 (to minimize the consequences of error variance), and 3) which correlated highly with another factor (and which had the lower alpha reliability of the two).

A set of 24 factor scores were derived from the successive factor analyses. The next question was whether this set of 24 factor scores, representing unweighted variables from all domains, differentiated significantly between the 25 post-meningitic children and the 25 matched controls. To determine this, a multiple discriminate analysis was carried out, but the first discriminate function was not significant (Wilks lambda = .53, df = 23 and 26, p = .49).

In addition to the discriminate function on the entire set, individual tests for significant differences between the post-meningitic and the matched controls were computed. In light of the insignificant overall test and due to the statistical problems involved, these analyses may be interpreted as post hoc guidelines for future research and not as definitive conclusions. Table 4 presents the "t" tests between the experimental and the control groups for each of the factors.

Apparently, a purely mathematical approach does not clarify the variations between the two groups. Perhaps this was partially a consequence of stepwise elimination of

Table 4

Factors Identified Through Factor Analysis Approach to All Variables

Group	Factor	Description	F-Ratio	Probability
Remaining School Adjustment Factors	BA	Not selected on peer nom.; low visibility	.199	.6616
	CA	Never talks, never turns in work on time	.429	.5224
	DA	Frightened, happy, turns in work on time	.009	.9239
	EA	Never runs, falls often	3.896	.0513
Remaining Speech and Hearing Factors	BB	Speech test: sh (ʃ) initial pos., medial pos., final pos., dz final pos.	1.874	.1741
	CB	Sound Discrim: Total noise errors, voiced plosive errors(noise)	1.068	.3074
	EB	Speech test: f final, θ initial pos., fl blend	2.379	.1258
	GB	Speech test: n final, hw blend	1.454	.2319
	IB	Speech test: s final pos., z final pos.	.880	.6446
	KB	Sound Discrim: coal (noise subtest)	1.573	.2135
	NB	Sound Discrim: voiced continuant errors (noise test)	.337	.5711
Remaining Individual Testing Factors	AC	Auditory vocal 22,I, ITPA Total, PPVT I.Q.	8.398	.0058
	BC	Paired associates, 2, 3, and total	.691	.5849
	CC	Rating scale: Activity, demandingness, impulsivity	.093	.7597

Table 4 (continued)

Group	Factor	Description	F-Ratio	Probability
Remaining Individual Testing Factors (continued)	DC	Peg board-preferred hand, other hand; Exam pronouncings; paragraph reading time; voiceless continuants	1.201	.2781
	EC	Hand dynamometer-preferred hand and other	.450	.5127
	GC	Finger tapping-preferred hand and other	.055	.8107
Remaining Medical Factors	AD	R-L confusion on self and body movements by direction	.925	.6571
	BD	Ears(#11 Card II Form 31); gross motor coord.; orientation; Fine motor coord.; genetic level	9.807	.0033
	CD	Walk a line; EOM irregularities; motor impersistance with eyes shut for 20 sec.	.513	.5160
	DD	Separation of movements, eye and tongue	.017	.8918
	LD	Infections; copy finger movements	.187	.6708

variables with overlapping variance. In addition, taking liberties with the assumptions of factor analysis, particularly in regard to number of variables relative to number of subjects, does not strengthen the function of mathematical applications of this type.

It is interesting to note, however, that three of the factors, BA (never runs, never falls), AC (Auditory Vocal - 22,I, ITPA Total, PPVT I.Q.), and BD (gross motor coordination, orientation, fine motor coordination, genetic level) discriminate at a much higher level than could be attributed to chance when analyzing a set of 24 tests for significance. These three factors bear a strong resemblance and contain many of the same variables as were identified through the clinical-statistical approach.

CHAPTER IV

RESULTS AND RECOMMENDATIONS

Mortality rates from acute bacterial meningitis have declined sharply with the advent of antibiotic therapies, but in the wake has remained a large number of children with observable post-meningitic sequelae. A review of the literature indicates that approximately 18% of survivors of acute bacterial meningitis manifest pronounced, readily observable sequelae which interfere with or complicate a total life adjustment. The remaining 82% of survivors have been considered cured and competitive.

Results

This pilot study was initiated to compare the school adjustment of a sample of the 82% of cured post-meningitic children with a matched sample of controls. The project also sought to suggest pre-school intervention strategies and to develop a model for implementation.

The Post-Meningitic Child. In the post-meningitic child, educational and medical researchers find a unique opportunity for collaborative study of why some children do not prosper in school. Post-meningitic children have been seriously ill with a disease which formerly was fatal with few exceptions. By studying a select group who survive without observable sequelae, who are in regular school classrooms competing with normal classmates, and who had the disease at least two years prior to school entrance (to dissipate transitory residua), the question can be asked: Are high fevers and other traumas accompanying infection of the brain covering related to school adjustment problems?

This study details a series of multidisciplinary examinations of 25 children who survived laboratory confirmed acute bacterial meningitis with no observable sequelae. These children had been cured of the bacterial infection, and physicians had assumed that they would suffer no prolonged after-effects of the disease when they left the hospital. School authorities, therefore, had no reason to assume that these children were not able to perform adequately in the regular educational environment. So these children, like all other children, were classified and assigned to the regular school program.

From all prior assumptions, there would appear to be no differences between this group of 24 post-meningitic children and a group of matched peers who have not experienced meningitis. Certainly from the manner in which

these children were handled after discharge from the hospital and in the school environment, differences were not anticipated.

But the findings in this study indicate some differences do exist. Post-meningitic children were found to be significantly lower on teacher ratings of overall school adjustment. They presented more academic problems and were deficient on measures of reading achievement in comparison with their matched controls.

Several clusters of problems seemed to underlie and contribute to the patterns of poor school adjustment and of academic problems. To begin with, the post-meningitic group appeared to have difficulty with instructional receptivity. They appeared less facile with various aspects of verbal organization and expression, as well as the ability to associate. All of these aspects of school performance are closely related to, but are not quite the same as, that which is measured by intelligence tests. These youngsters had difficulty in grasping and responding to the verbal world.

Another cluster of problems stemmed from their ineptness in presenting a positive image as a student. They experienced difficulty in getting along with classmates and with facing up to new situations. They appeared to lack self-confidence and the associated skills necessary for portraying the role of an interested, alert, and popular student. They could be characterized as being out of phase or inadequate as a student in school.

Neurological organization also presented problems for these youngsters. Post-meningitic children had difficulty with gross as well as fine motor coordination; and these difficulties left them vulnerable in many aspects of school functioning. Neurological dysfunction and poor motor coordination penalizes the post-meningitic child in competitive play with his peers and results in his being less popular as a team member. Distractibility and inattentiveness would also interfere with his student image and with instructional receptivity.

The results of this study point to several clusters of differences between presumably competitive post-meningitic children and non-post-meningitic children. They suggest that children who survive acute bacterial meningitis with no observable sequelae, who were considered competitive enough to be assigned to regular classroom activities, may be handicapped emotionally, physically, and socially in school. They suggest that meningitis may be far more traumatic and permanently disabling a disease than has in the past been accepted.

Possible Pre-School Intervention. A second aspect of the pilot study of the school adjustment of post-meningitic children has been the exploration and articulation of programs to prevent adjustment problems among post-meningitic children if warranted by the findings. Consequently, whenever possible, variables used in examinations were selected on the basis of their relevance for pre-school behavior patterns. Psychological tests, such as the ITPA, the Frostig, and PPVT were selected in part because they were extended down to encompass the 2 year old level of performance. Neurological and psychiatric items have precursors rooted in earlier stages of life, though not always as clear and surely not as objective as psychological tests. Woven into other instruments for data collection are variables assessing behavior which can readily be traced to patterns crystalizing in the pre-school years.

Therefore, the patterns of deficit experienced by post-meningitic children are useful guides for pre-school screening and intervention to ameliorate or prevent subsequent school adjustment problems. In the area of intellectual receptivity, the value of psychological instruments such as the ITPA, Frostig, and PPVT has been demonstrated with this group of children; and, since norms for these tests reach into the pre-school level, they should be of value for pre-school screening as well. Other standardized test procedures which have been demonstrated to be highly correlated with performance on these three instruments and which have the added efficiency of brevity would also be applicable. Commercially produced remediation materials based upon work with these three standardized instruments is becoming available and could be used in the home by parents with a minimum of supervision. In addition, pre-school intervention should include home visits wherein parents are encouraged to offer a variety of enriching experience for their children who have suffered acute bacterial meningitis. A concerted effort should be made to provide the child with many experiences of the following types: activities to accentuate verbal organization and expression; games requiring matching colors, matching objects to colors, words to colors, and objects to words; structured situations to emphasize likenesses, differences, and comparisons in the environment; repeating highlighting of details for association; games requiring transposing of input and output; games in which a productive cognitive style is emphasized.

Observations on the student image of post-meningitic children were derived from teacher and peer characterizations of these children. The post-meningitic children in general had a low visibility, were quiet and on the fringe of activities, and apparently were not as active and aggressive as the control children. Personality assessment techniques for characteristics of this nature are not yet

reliable for the pre-school level. Unfortunately, to date, only the observations of well-trained pre-school group leaders provide the best clues as to whether children are developing effective competitive personalities. Logically then, post-meningitic children should be encouraged quite early to participate in structured pre-school situations such as community center activity groups, nursery schools, and kindergartens. At home these children should have special help with games played with peers. They should be exposed to an especially active and exciting life to encourage spontaneity. Perhaps they should be encouraged to play with younger children to foster competition, confidence, and even dominance. Special caution should be exercised to prevent their being overwhelmed in competitive play with other more assertive peers.

The small, less well-identified factors which pointed to a poor capacity for neurological integration on the part of post-meningitic children may be even more difficult to trace to pre-school training and intervention practices. Results of the nationwide study on child development under the auspices of the National Institute for Neurological Diseases and Blindness when published should provide some clues concerning the roots of clumsy, inept behavior among children who are slow to react and hesitant to engage in activities. With some caution, it would be safe to generalize that the post-meningitic pre-school child requires special attention in posture and movement patterns. Emphasis should be given to rhythmic movement and gracefulness of action. In addition to the play situations experienced by all children, there are strong indications that these children need special guidance in dance and gymnastic activities. In addition to agility and strength, an increasing body of research points to the importance of games which clarify body mechanics in terms of tenseness and relaxation of muscles and limbs. These children may need special instruction on how the body operates and on how they are to operate it.

Procedures for implementing the screening and pre-school intervention for post-meningitic children might conceivably vary from community to community. What is important is that the child and family receive some special guidance and supervision prior to the post-meningitic child's entrance into regular school programs. In areas where hospital affiliated social service follow-up is common practice, the family and post-meningitic child could be routinely visited by medical social workers alert to the potential problems of children surviving acute bacterial meningitis.

But of more likely value would be the practice of medical authorities advising the school health service when a

child has been dismissed from the hospital as being cured of acute bacterial meningitis. School health services could then place the post-meningitic child and his family under their educational wing and initiate pre-school preparation for eventual school entrance. Depending on the depth of school health services and the staffing patterns, the post-meningitic child and his family would be visited by a home visitor, a school health nurse, a school social worker, or whatever discipline the existing school policies would provide. With clear orientation toward successful school adjustment in mind, the educationally oriented pre-school screening and intervention would likely be more remediation and school-readiness oriented than would be the medical model. In addition, the vast array of ancillary educational services would be readily available for particularly knotty problems.

Implementation of Findings. The third objective of this project was to develop and sustain interdisciplinary and interinstitutional involvement in the pilot study to prepare for implementation of the findings. Results of this phase have been rewarding and hold great promise for future collaborative effort.

Representatives from Emory University Medical School and Atlanta, Georgia, Schools, from University of Tennessee School of Medicine and Memphis, Tennessee, Schools, from Vanderbilt University School of Medicine and Metropolitan Nashville, Tennessee, Schools, and from Tulane University School of Medicine and New Orleans, Louisiana, Schools were enthusiastically cooperative in all stages of the pilot study. Correspondence received their quick attention, and their suggestions were helpful. Each of the eight institutions was represented at both the planning conference and the evaluation conference, and all their professional time was given without compensation from this study.

The four research communities have been augmented by another, comprising the University of Texas Medical College, Southwest, and the Dallas, Texas, Public Schools. Now, five large school systems and their local medical colleges have plans for prospective studies on the school adjustment of post-meningitic children.

Several peripheral studies have spun-off from this pilot study. All four school systems cooperated by gathering data on all children enrolled in special education classes for the perceptually handicapped. A manuscript describing the results of this peripheral study is in preparation, and the results have been presented in several professional meetings and to some groups of teachers who supplied the information.

Another study with independent financing has compared competitive survivors of H. flu. meningitis with their siblings along several measures. Results of this study have been presented as papers to three different pediatric conventions and a manuscript is in preparation.

Interdisciplinary research stimulates examination of the same data from various viewpoints. Of the three completed publications growing from this study, one is in pediatric literature; one is in special education literature; and one is within the area of scientific reference work. The several manuscripts in preparation are directed toward professional literature of psychology, special education, physical education, neurology, psychiatry, and pediatrics.

Recommendations

In light of the findings of this study, it would seem warranted to initiate a program to test the effectiveness of pre-school screening and intervention to reduce school adjustment problems among post-meningitic children. This could be accomplished by mounting a prospective study in several communities to insure adequate sampling and generalized professional practice (as opposed to the impact of one group of personalities in one specific community). In each of the cooperating communities, educators and medical advisors would identify 30 or more post-meningitic children two years prior to school admission and randomly assign them to one of three groups. Group I would receive a school oriented follow-up through school health channels preparatory to school enrollment. Group II would receive a medically oriented follow-up and be visited and counseled by the traditional medical practice in that community. Group III would receive statistical follow-up without any pre-school contacts. The three groups would be matched with non-post-meningitic control children when they entered school. These post-meningitic children would be followed from the date of identification which would be two years before school entrance until they had completed the third grade, at which time the three strategies of intervention could be compared and the most effective route determined.

To the behavioral scientist this experimental approach for determining the most effective means of pre-school intervention seems warranted and practical. But medical personnel participating in this study raised two penetrating questions. First, this study examined children who had experienced several different kinds of acute bacterial meningitis; and the possibility that each kind of meningitic infection produces a different pattern of sequelae was not studied. Therefore, from the view of specialists in infectious disease and epidemiology, the types of meningitis should be studied separately and in greater depth prior to

a longitudinal prospective study. Therefore, one firm recommendation is to cross-validate the key factors identified through this exploratory study on a much larger sample of children who suffered Hemophilus influenza meningitis.

A second question raised by medical specialists related to the effect of hospitalization of any type upon the school adjustment of children. Some studies indicate that accidents, traumas of different types, and other illnesses may have some effect upon the school adjustment of those affected. Therefore, a second recommendation is submitted that within the large cross-validation study on post-Hemophilus influenza-meningitic children, one rather large control group consist of children who had experienced hospitalization of a comparable length as the post-meningitic group, but without central nervous system involvement.

A cross-validation study on a much larger sample with respect to numbers and a much more highly refined sample with respect to type of meningitis and impact of hospitalization would, of course, afford clarification of the central question concerning the school adjustment of post-meningitic children. But, concurrently, it would move the four research communities and a fifth community requesting participation, Dallas, into the first phase of a prospective study. Organizational time for any research is costly, but essential. Cross-validation prior to prospective studies in this instance would pull together key personnel in each of the five research communities on a more limited basis for the cross-validation and for a redefinition of roles for the prospective study.

REFERENCES

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Dodge, P. and Swartz, M. Bacterial meningitis: a review of selected aspects. II. Special neurological problems, post-meningitic complications and clinicopathological correlations. New England Journal of Medicine, 1965, 272, 1003-1010.

Dunn, L. Minimal brain dysfunction: a dilemma for educators. George Peabody College, Institute on Mental Retardation and Intellectual Development, Papers and reports. Vol. II, No. 1, 1965.

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Haggerty, R. and Ziai, M. Acute bacterial meningitis. Advances in Pediatrics, 1964, 13, 129-181.

Hutchinson, P. and Kovacs, M. The sequelae of acute purulent meningitis in childhood. Canadian Medical Association Journal, 1963, 89, 158-166.

Johnson, E. A study of psychological findings of one hundred children recovering from purulent meningitis. Journal of Clinical Psychology, 1960, 16, 55-61.

Kresky, B., Buchbinder, S. and Greenberg, I. The incidence of neurologic residua in children after recovery from bacterial meningitis. Archives Pediatrics, 1962, 79, 63-71.

Paine, R., Werry, J. and Quay, H. A study of "minimal cerebral dysfunction". Developmental Medicine and Child Neurology, in press.

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APPENDIX A

AN ANNOTATED BIBLIOGRAPHY OF

THE SEQUELAE OF ACUTE BACTERIAL MENINGITIS

1. ACERS, T. E. AND COOPER, W. C. CORTICAL BLINDNESS SECONDARY TO BACTERIAL MENINGITIS. AMER. J. OPHTHAL. 59: 226-229, (Feb.), 1965.

Two cases of bacterial meningitis were reported in which cortical blindness was a symptom and sequela. The hospital course and method of treatment was described.

ETIOLOGIC AGENTS:

Diplococcus pneumoniae
Hemophilus influenzae

SEQUELAE:

Cortical blindness, severe brain damage.

RESEARCH CENTER:

The Ophthalmology Section, Surgical Service, and Pediatric Section, Medical Service, U. S. Army Hospital, Fort Sill Oklahoma.

REFERENCES:

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2. ADAMS, R. D. AND KUBIK, C. S. THE EFFECTS OF INFLUENZAL MENINGITIS ON THE NERVOUS SYSTEM. NEW YORK STATE J. MED. 47: 2676-2682, (Dec. 15), 1947.

Three cases of influenzal meningitis were reported in which the most common symptoms were drowsiness, convulsions, and fever. Early diagnosis was emphasized and the therapy discussed.

ETIOLOGIC AGENTS:

Staphylococcus aureus
Hemophilus influenzae

SEQUELAE:

Death, permanent brain damage.

RESEARCH CENTER:

The Department of Neurology, Harvard Medical School, The Neurological Unit, Boston City Hospital, and The Department of Neurology, Massachusetts General Hospital.

REFERENCES:

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3. ALEXANDER, H. E., LEIDY, G., RAKE, G., AND DONOVICK, R. HEMOPHILUS INFLUENZAE MENINGITIS TREATED WITH STREPTOMYCIN. J.A.M.A. 132: 434-440, (Oct. 26), 1946.

An analysis was presented of 25 patients treated with streptomycin alone or combined with other agents. Those patients who presented less severe evidence of meningitis appeared to respond well to streptomycin alone, while the severe cases required the use of rabbit antiserum, sulfadiazine, and streptomycin.

ETIOLOGIC AGENTS:

Hemophilus influenzae

SEQUELAE:

Death, deafness.

RESEARCH CENTER:
The Babies Hospital and The Department of Pediatrics, Columbia University College of Physicians and Surgeons, and The Squibb Institute for Medical Research.
REFERENCES:
10

4. ALTMANN, G. AND GERICHTER, C. B. SALMONELLOSIS IN A GENERAL HOSPITAL. ISRAEL MED. J. 21: 243-251, (Nov.-Dec.), 1962.
A review was presented of all aspects of Salmonellosis including 3 cases of meningitis in children under 2 years of age. Five hundrend fifty-two patients were studied. Epidemiology and sensitivity to antibacterial agents were also discussed.
ETIOLOGIC AGENTS:
Salmonella typhimurium
Salmonella enteritidis
Salmonella hadar
SEQUELAE:
Death.
RESEARCH CENTER:
The Department of Bacteriology, Tel Hashomer Government Hospital and Vaccine and Serum Institute, Salmonella Center of Israel, Government Central Laboratories, Jerusalem.
REFERENCES:
7

5. APPELBAUM, E. MENINGITIS FOLLOWING TRAUMA TO THE HEAD AND FACE. J.A.M.A. 173: 1818-1822, (Aug. 20), 1960.
In 91 cases of post-traumatic meningitis a fractured skull was present in over half of the cases. The average interval between injury and illness was two weeks. Significant symptoms were bleeding from the nose and ears and cerebrospinal fluid rhinorrhea or otorrhea.
ETIOLOGIC AGENTS:
Pneumococcus
Streptococcus
Staphylococcus
Hemophilus influenzae
Meningococcus
Klebsiella pneumoniae
"Others"
SEQUELAE:
Death, deafness, unilateral blindness, mental impairment.
RESEARCH CENTER:
Bureau of Laboratories, Department of Health, New York.
REFERENCES:
17

6. APPELBAUM, E. AND ABLER, C. ADVANCES IN THE DIAGNOSIS AND TREATMENT OF ACUTE PYOGENIC MENINGITIS. NEW YORK STATE JOURNAL OF MEDICINE 58: 204-211, (Jan. 1), 1958.
A research study into the most effective drug treatment of various types of meningitis was presented. The article discussed clinical aspects, laboratory studies, and chemotherapy of the illness.
ETIOLOGIC AGENTS:
Listerella
Neisseria pharyngis
Bacillus evanidus
Sporotrichum
Micrococcus tetragenus
Unclassified organisms

Meningococcus
Pneumococcus
Streptococcus
Hemophilus influenzae
Staphylococcus
Escherichia coli
Pseudomonas aeruginosa
Klebsiella pneumoniae
Cryptococcus
Actinomyces
Salmonella
Bacillus proteus
Neisseria catarrhalis
Streptococcus typhosa

SEQUELAE:
Arthritis, deafness, uveitis.

RESEARCH CENTER:
Bureau of Laboratories, New York City, Department of Health.

REFERENCES:
80

7. ARCHIBALD, H. M. CEREBROSPINAL MENINGITIS IN NORTHERN NIGERIA. J. TROP. MED. HYG. 65: 196-199, (Aug.), 1962.

In a review of the epidemics of meningitis in Northern Nigeria in recent years the seasonal variation, geographic location, and methods of treatment were discussed.

ETIOLOGIC AGENTS:
None listed.

SEQUELAE:
Death.

RESEARCH CENTER:
Preventive Services Division, Ministry of Health, Northern Region of Nigeria.

REFERENCES:
8

8. ARNOLD, G. G. THE NATURE OF POST-MENINGITIC SUBDURAL EFFUSIONS. J. PEDIAT. 40: 757-760, (June), 1952.

A case study explored the derivation of the protein and yellow pigment in the subdural fluid of meningitis due to beta-hemolytic streptococcus. The classification of the subdural fluid and the pathogenesis of meningitis were also discussed.

ETIOLOGIC AGENTS:
Streptococcus

SEQUELAE:
Mild hemiplegia, high fever, convulsions.

RESEARCH CENTER:
Department of Pediatrics, Medical College of Virginia.

REFERENCES:
9

9. ARNOLD, G. G. PURULENT AND SEROUS SUBDURAL EFFUSIONS IN THE COURSE OF PURULENT MENINGITIS. J. PEDIAT. 39: 191-196, (Aug.), 1951.

An analysis of four cases of purulent meningitis admitted to Children's Hospital in the last six months of 1950 was presented. Subdural effusions complicated each case. The most common indications of subdural effusions were given and a method of therapy was suggested.

ETIOLOGIC AGENTS:
Diplococcus pneumoniae
Hemophilus influenzae

SEQUELAE:
Diffuse brain damage, hydrocephalus, focal necrosis, subdural effusion.
RESEARCH CENTER:
The Children's Memorial Hospital and The Department of Pediatrics, McGill University.
REFERENCES:
6

10. ATHAVALE, V. B. SUBDURAL EFFUSIONS IN PYOGENIC MENINGITIS IN CHILDREN. INDIAN J. CHILD HEALTH 2: 572-576, (Nov.), 1962.
In a study of 60 patients treated between 1959 and 1961 for pyogenic meningitis, fourteen per cent had subdural effusions. The conditions under which subdural effusions were found and indications for subdural taps were discussed. The treatment used for each type of meningitis was included.
ETIOLOGIC AGENTS:
Staphylococcus
Pneumococcus
Meningococcus
Salmonella
Other Gram negative bacilli
SEQUELAE:
Death, subdural effusion.
RESEARCH CENTER:
Lokmanya Tilak Municipal General Hospital, Bombay.
REFERENCES:
5

11. AUSTRIAN, R. PNEUMOCOCCAL ENDOCARDITIS, MENINGITIS, AND RUPTURE OF THE AORTIC VALVE. ARCH. INT. M. 99: 539-544, (Apr.), 1957.
A study was presented concerning the association of pneumococcal endocarditis and meningitis. Methods of treatment were discussed.
ETIOLOGIC AGENTS:
Pneumococcus
SEQUELAE:
Aortic insufficiency, myocardial failure, death.
RESEARCH CENTER:
Department of Medicine, State University of New York, College of Medicine at New York City.
REFERENCES:
7

12. BALLARD, S. I. AND MILLER, H. G. SEQUELAE OF CEREBROSPINAL MENINGITIS. AN ANALYSIS OF 60 CASES. LANCET 2: 273-275, (Sept.), 1945.
In a study of 60 men, 53 suffered residual symptoms from cerebrospinal meningitis. The determining factors in the severity and persistence of the residual symptoms were the severity of the acute illness and the degree of psychoneurotic predisposition as determined by personality study.
ETIOLOGIC AGENTS:
None listed.
SEQUELAE:
Headache, backache, postural dizziness, mental depression, insomnia, failure of concentration and memory, muscular stiffness and discomfort in the lower limbs.
RESEARCH CENTER:
RAF Neuropsychiatric Centre.

REFERENCES:
8

13. BENSON, P. F. AND BOYD, M. E. THE ADRENAL GLANDS IN FULMINATING MENINGOCOCCAL INFECTION: A CLINICO-PATHOLOGICAL STUDY. GUY HOSP. REP. 109: 219-226, 1960.

A study of 68 patients, admitted between 1931 and 1955, discussed the relationship of massive adrenal haemorrhage to peripheral vascular failure in patients who showed clinical features of Waterhouse-Frederichsen syndrome.

ETIOLOGIC AGENTS:
Meningococcus

SEQUELAE:
Death.

RESEARCH CENTER:
Pediatric and Pathological Departments of Johns Hopkins Hospital, Baltimore, Maryland.

REFERENCES:
23

14. BLOOR, B. M., GRANT, R. S., AND TABRIS, J. A. SEQUELAE OF MENINGITIS DUE TO HEMOPHILUS INFLUENZAE: ANALYSIS OF 44 CASES. J.A.M.A. 142: 241-243, (Jan. 28), 1950.

A study of 44 patients who had meningitis between 1945 and 1948 showed that the sequelae were affected by seasonal variation, age distribution, and the appearance and severity of convulsions. Neurologic and electroencephalographic tests were given.

ETIOLOGIC AGENTS:
Hemophilus influenzae

SEQUELAE:
Death, deafness, facial weakness, reflex change, hydrocephalus, bilateral pyramidal signs, bilateral nerve deafness, hemiparesis, retarded developmental level, behavior problems, slow activity, focal abormality, amplitude asymmetry, generalized disrhythmia.

RESEARCH CENTER:
Departments of Pediatrics and Neurology, University of Louisville School of Medicine, Louisville, Kentucky.

REFERENCES:
0

15. BOE, J. AND HUSEKLEPP, H. RECURRENT ATTACKS OF BACTERIAL MENINGITIS. A "NEW" CLINICAL PROBLEM. REPORT OF FIVE CASES. AMER. J. MED. 29: 465-475, (Sep.), 1960.

Recurrent attacks of bacterial meningitis were associated with previously encountered skull fracture or craniopharyngeal fistula which permitted the escape of cerebrospinal fluid into the nasopharynx.

ETIOLOGIC AGENTS:
Pneumococcus
Meningococcus
Hemophilus influenzae

SEQUELAE:
Deafness.

RESEARCH CENTER:
University of Bergen School of Medicine, Medical Department B, Bergen, Norway.

REFERENCES:
26

16. BUSH, R. T. PURULENT NEONATAL MENINGITIS. NEW ZEAL. MED. J. 63: 137-139, (Mar.), 1964.

In an analysis of ten cases, premature birth and abnormal delivery were important factors in the neonatal susceptibility to purulent meningitis.

ETIOLOGIC AGENTS:
- Escherichia coli
- Staphylococcus
- Streptococcus

SEQUELAE:
- Death, hydrocephalus.

RESEARCH CENTER:
- The Hutt Hospital.

REFERENCES:
- 7

17. CARPENTER, R. R. AND PETERSDORF, R. G. THE CLINICAL SPECTRUM OF BACTERIAL MENINGITIS. AMER. J. MED. 33: 262-275, (Aug.), 1962.

A retrospective study of 209 patients admitted to King County Hospital between 1950 and 1960, who were suffering from meningitis, included a discussion of the disease in regards to: etiology, incidence, clinical history, physical findings, associated diseases, complications, recurrent infections, cerebrospinal fluid, prognosis and treatment.

ETIOLOGIC AGENTS:
- Meningococcus
- Pneumococcus
- Hemophilus influenzae
- Escherichia coli
- Staphylococcus
- Streptococcus
- Paracolon
- Diptheroid
- Mixed infections
- Unknown agents

SEQUELAE:
- Death, subdural effusions, deafness, headaches, hearing defects, dizziness, dementia, convulsive disorder, hemiparesis, oculomotor palsy.

RESEARCH CENTER:
- Department of Medicine, University of Washington School of Medicine and King County Hospital, Seattle, Washington.

REFERENCES:
- 43

18. CARSON, M. J. AND KOCH, R. MANAGEMENT OF BACTERIAL MENINGITIS IN CHILDREN. PEDIAT. CLIN. NORTH AMERICA (3): 377-398, (May), 1956.

In a review of 354 cases of meningitis admitted between 1944 and 1953, the clinical syndrome, differential diagnosis, and agents of the disease were discussed. The preferred treatment for complications was included.

ETIOLOGIC AGENTS:
- Hemophilus influenzae
- Meningococcus
- Pneumococcus
- Escherichia coli
- Salmonella
- Staphylococcus
- Streptococcus
- Pseudomonas
- Paracolon

Proteus
Unknown

SEQUELAE:
Death, subdural effusions, hydrocephalus.

RESEARCH CENTER:
The Los Angeles Children's Hospital and The Department of Pediatrics, University of Southern California School of Medicine, Los Angeles.

REFERENCES:
86

19. CROOK, W. G., CLANTON, B. R., AND HODES, H. L. HEMOPHILUS INFLUENZAE MENINGITIS: OBSERVATIONS ON TREATMENT OF 110 CASES. PEDIATRICS 4: 643-658, (Nov.), 1949.

A review and evaluation of 110 cases of meningitis admitted during the years 1941 and 1948 was presented. Age at onset and delay in treatment were important factors in the recovery from the illness.

ETIOLOGIC AGENTS:
Hemophilus influenzae

SEQUELAE:
Death, spastic hemiplegia, mental retardation, hydrocephalus, cortical atrophy, blindness, deafness.

RESEARCH CENTER:
Sydenham Hospital, Baltimore City Health Department, The Harriet Lane Home of the Johns Hopkins Hospital, Baltimore, Maryland.

REFERENCES:
36

20. DAISLEY, G. PNEUMOCOCCAL MENINGITIS. CLIN. PROC. CHILD. HOSP. WASH. 7: 1-10, (Dec.), 1950.

In a review of the course of pneumococcal meningitis from 1943 to 1950 the decreases in the mortality and morbidity rates, length of time for hospitalization, and the average duration of fever were discussed.

ETIOLOGIC AGENTS:
Pneumococcus

SEQUELAE:
Mental retardation, bilateral nerve deafness, hydrocephalus, spastic quadriplegia, convulsions, blindness, hemiparesis, truncal ataxia, paralysis of the sixth nerve, paralysis of the seventh nerve.

RESEARCH CENTER:
Children's Hospital, Washington, D. C.

REFERENCES:
10

21. DAVIES, J. A. V., MEYER, E., AND HYDE, H. FOLLOW-UP STUDY OF PATIENTS WHO HAVE RECOVERED FROM MENINGITIS. AM. J. DIS. CHILD. 79: 958-961, (May), 1950.

One hundred and five children who had suffered meningitis between the years 1940 and 1947 were studied by physical and psychological testing three months to eight years after the initial illness.

ETIOLOGIC AGENTS:
Pneumococcus
Meningococcus
Hemophilus influenzae

SEQUELAE:
Severe motor damage, mental damage, behavior disturbances.

RESEARCH CENTER:
Boston.
REFERENCES:
0

22. DEGEN, J. A., JR., CARMERON, H., ROBINSON, V. L. M., AND WEIDEN, M. S. R. SEQUELAE OF CEREBROSPINAL MENINGITIS. FOLLOW-UP STUDY OF NINE HUNDRED EIGHTY-SIX CASES. BRIT. MED. J. 2: 243-247, (Aug. 25), 1945.
Nine hundred eighty-six patients in Great Britain who had suffered meningitis between 1940 and 1942 were studied 3 to 29 months after illness. Only the patient's statement of his physical condition was obtained.
ETIOLOGIC AGENTS:
None listed.
SEQUELAE:
Less emotional stability, depression, poor concentration, poor memory, total and partial deafness, visual disabilities, strabismus, tinnitus, excessive lacrimation, other impairment of special senses, pains in limbs and "rheumatism", weakness of limbs, lameness, headache, easy fatiguability, backache, poor balance, dizziness, gastrointestinal symptoms, neck pain, nightmares, increased susceptibility to colds, "heavy head", retarded development, insomnia.
RESEARCH CENTER:
American Red Cross, Harvard Field Hospital Unit.
REFERENCES:
1

23. DESMIT, E. M. A FOLLOW-UP OF 110 PATIENTS TREATED FOR PURULENT MENINGITIS. ARCH. DIS. CHILDHOOD 30: 415-418, (Oct.), 1955.
One hundred ten patients who suffered from purulent meningitis between October 1949 and March 1954 were checked six months' or more after discharge from the hospital. Sequelae, effects of therapeutic drugs and causes of residual effects were discussed.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Meningococcus
Pneumococcus
Streptococcus
Bacterium coli
SEQUELAE:
Death, convulsions, ataxia, spastic arms and legs, deafness hydrocephalus, aphasia, alexis, agraphia.
RESEARCH CENTER:
The Juliana Kinderziekenhuis, The Hague.
REFERENCES:
3

24. DODGE, P. R. AND SWARTZ, M. N. BACTERIAL MENINGITIS-A REVIEW OF SELECTED ASPECTS. II. SPECIAL NEUROLOGIC PROBLEMS, POST-MENINGITIC COMPLICATIONS AND CLINICOPATHOLOGICAL CORRELATIONS. NEW ENG. J. MED. 272: 954-960 contd., (May 6), 1965.
A study of 207 patients who were treated between 1956 and 1962 discussed altered consciousness, seizures, focal cerebral signs, cranial nerve signs, and the problem of increased intracranial pressure as associated with bacterial meningitis.
ETIOLOGIC AGENTS:
Diplococcus pneumoniae
Hemophilus influenzae

Neisseria meningitidis
Streptococcus
Escherichia coli
Staphylococcus aureus
Pseudomonas aeruginosa
Pasturella multocide
Clostridium perfringens
Proteus
Listeria monocytogenes
Unknown

SEQUELAE:
Death, deafness, hemiparesis, triplegia, dysphasia, cerebellar herniation.

RESEARCH CENTER:
Department of Medicine and Neurology, Harvard Medical School, and Neurologic, Children's and Medical (Infectious Disease Unit), Services and Joseph P. Kennedy, Jr. Memorial Laboratories, Massachusetts General Hospital.

REFERENCES:
21

25. DODGE, P. R., AND SWARTZ, M. N. BACTERIAL MENINGITIS-A REVIEW OF SELECTED ASPECTS. II. SPECIAL NEUROLOGIC PROBLEMS, POST-MENINGITIC COMPLICATIONS AND CLINICOPATHOLOGICAL CORRELATIONS. NEW ENG. J. MED. 272: 1003-1010 concl., (May 13), 1965.
Some of the effects of meningitis on the nervous system were discussed with emphasis on subdural effusion.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Meningococcus
Pneumococcus

SEQUELAE:
Peripheral nerve damage, death, subarachnoid hemorrhage seizures, subdural effusions.

RESEARCH CENTER:
Department of Neurology and Medicine, Harvard Medical School, The Neurological Children's and Medical Services, and The Joseph P. Kennedy, Jr. Laboratory of the Massachusetts General Hospital.

REFERENCES:
31

26. DZHERDZHERIAN, S. A. CATAMNESTIC DATA OF CHILDREN WHO HAD SUSTAINED EPIDEMIC MENINGITIS IN MODERN MODES OF THERAPY. PEDIATRIIA 2: 51-56, (Feb.), 1959.
A follow-up study on 88 children who had meningitis showed only 7 of these suffering any residual effects, either permanent or temporary.

ETIOLOGIC AGENTS:
Meningococcus

SEQUELAE:
Loss of hearing.

RESEARCH CENTER:
Not listed.

REFERENCES:
10

27. EIGLER, J. O., WELLMAN, W. E., ROOKE, E. D., KEITH, H. M., AND SVIEN, H. J. BACTERIAL MENINGITIS. I. GENERAL REVIEW (294 CASES). PROC. MAYO CLIN. 36: 357-365, (Jul. 19), 1961.
A detailed analysis was presented of 294 cases of meningitis admitted to the clinic between the years 1948 to 1958.

Special attention was paid to 116 patients suffering from meningitis caused by uncommon bacteria and to 141 patients simultaneously suffering from meningitis and an underlying disease.

ETIOLOGIC AGENTS:

Streptococcus
Staphylococcus aureus
Neisseria meningitidis
Diplococcus pneumoniae
Haemophilus influenzae
Unknown
"Other"

SEQUELAE:

Death.

RESEARCH CENTER:

Mayo Clinic.

REFERENCES:

9

28. EPSTEIN, J. A. AND GOLDZIER, S. E. II. BILATERAL ENCAPSULATED SUBDURAL EFFUSION COMPLICATING BACTERIAL MENINGITIS IN INFANCY: REPORT OF A CASE WITH REVIEW OF LITERATURE A.M.A. ARCH. NEUROL. AND PSYCHIAT. 69: 242-249, (Feb.), 1953.

A case report was presented of a 10 month old infant suffering from meningitis which was complicated by the presence of subdural effusions. The discussion included the surgical removal of the membranes and the common symptoms indicating the presence of subdural effusions.

ETIOLOGICAL AGENTS:

Neisseria meningitidis

SEQUELAE:

Subdural effusion.

RESEARCH CENTER:

Department of Surgery, Division of Neurological Surgery, and The Department of Pediatrics, Gouverneur Hospital.

REFERENCES:

16

29. FARMER, T. W. NEUROLOGIC COMPLICATIONS DURING MENINGOCOCCIC MENINGITIS TREATED WITH SULFONAMIDE DRUGS. ARCH. INT. MED. 76: 201-209, (Oct.), 1945.

A study of 26 patients with abnormalities such as sixth, seventh, and eighth nerve paralysis and transient focal cerebral complications was presented. The follow-up was three years after the illness.

ETIOLOGIC AGENTS:

Meningococcus

SEQUELAE:

Diplopia, pseudoptosis of the eyelid, strabismus, facial diplegia, facial paralysis, deafness, unsteadiness in walking, disorientation, confabulation, hallucinations, convulsions, tremors, coma, hemiplegia, aphasia, hemiparesis.

RESEARCH CENTER:

Johns Hopkins Hospital, Baltimore, Boston City Hospital, Massachusetts Memorial Hospital, Boston.

REFERENCES:

16

30. FORTUINE, R. ACUTE PURULENT MENINGITIS IN ALASKA NATIVES. EPIDEMIOLOGY, DIAGNOSIS, AND PROGNOSIS. CANAD. MED. ASS. J. 94: 19-22, (Jan. 1), 1966.

In a study of 69 patients who had purulent meningitis, special attention was paid to the problems involved in serving the inhabitants of Southwestern Alaska.

ETIOLOGIC AGENTS:

Pneumococcus
Meningococcus
Hemophilus influenzae
Staphylococcus pyogenes
Staphylococcus
Unknown

SEQUELAE:

Death, convulsive disorders, mental retardation, motor weakness or paralysis, strabismus, visual defect, deafness.

RESEARCH CENTER:

Alaska Native Hospital, Bethel, Alaska.

REFERENCES:

3

31. FRENCH, J. D. BACTERIAL MENINGITIS IN INFANTS AND CHILDREN. VIRGINIA M. MONTH. 84: 123-127, (Mar.), 1957.

An analysis of 150 cases, admitted to the Medical College of Virginia between January 1953 and January 1956, discussed bacterial meningitis in regards to age, seasonal incidence, etiology, symptoms, signs, laboratory findings, therapy, complications, otitis media, and mortality.

ETIOLOGIC AGENTS:

Meningococcus
Hemophilus influenzae
Pneumococcus
Escherichia coli
Proteus
Pseudomonas
Salmonella
Unknown

SEQUELAE:

Deafness (partial and complete), hydrocephalus, sixth nerve paralysis, mental retardation without hydrocephalus, aphasia, mental and developmental regression, behavior problem, facial paralysis.

RESEARCH CENTER:

Pediatric Service of the Medical College of Virginia.

REFERENCES:

10

32. GALLOWAY, H. ACUTE PYOGENIC MENINGITIS IN CHILDREN IN THE NORTH-EAST OF SCOTLAND. SCOT. MED. J. 11: 119-127, (Apr.), 1966.

A retrospective follow-up study of 287 cases of acute pyogenic meningitis, which occurred between 1946 and 1961, emphasized epidemiology, types of meningitis, urban and rural distribution, seasonal incidence, sex incidence, age incidence, deaths, sequelae, and mechanism of brain damage.

ETIOLOGIC AGENTS:

Meningococcus
Pneumococcus
Hemophilus influenzae
Coliform bacilli
Unidentified
Mixed infections

SEQUELAE:

Death, impaired intellect, behavior problems, deafness, lack of concentration, hydrocephalus, hemiplegia, petit mal, mental retardation, slow development, grand mal epilepsy.

RESEARCH CENTER:
Department of Child Health, University of Aberdeen, Royal Aberdeen Hospital for Sick Children and City Hospital, Aberdeen.
REFERENCES:
28

33. GOOCH. J. M. SEQUELAE OF NEONATAL DISEASE. MED. J. AUST. 50(1): 34-37, (Jan. 12), 1963.
In a retrospective study, permanent brain damage was reported in a high percentage of infants who had neonatal meningitis with persisting signs of neurological sequelae.
ETIOLOGIC AGENTS:
Escherichia coli
SEQUELAE:
Permanent brain damage.
RESEARCH CENTER:
Royal Children's Hospital, Melbourne, Australia.
REFERENCES:
4

34. GORDON, R. R. MENINGEAL INFECTIONS IN CHILDHOOD. PRACTITIONER 194: 343-349, (Mar.), 1965.
A review of purulent, viral, and tuberculous infections in children discussed the cause of the illness, its course, and the prescribed treatment for each type.
ETIOLOGIC AGENTS:
Coliform bacilli
Meningococcus
Hemophilus influenzae
Pneumococcus
Streptococcus
SEQUELAE:
Hydrocephalus, subdural effusion, convulsions, epilepsy, deafness, mental retardation, behavior and personality defect, visual defect.
RESEARCH CENTER:
Children's Hospital and City General Hospital, Sheffield.
REFERENCES:
0

35. GORMAN, C. A., WELLMAN, W. E., AND EIGLER, J. O. BACTERIAL MENINGITIS. II. INFECTIONS CAUSED BY CERTAIN GRAM-NEGATIVE ENTERIC ORGANISMS. PROC. MAYO CLINIC 37: 703-712, (Dec. 19), 1962.
A retrospective study of 23 patients admitted to the Mayo Clinic between 1948 and 1960 for treatment of meningitis due to gram-negative enteric organisms indicated that in 21 of the cases, complications in treatment arose due to other underlying diseases.
ETIOLOGIC AGENTS:
Escherichia coli
Aerobacter aerogenes
Pseudomonas
Proteus
Alcaligenes
Unidentified
SEQUELAE:
Death.
RESEARCH CENTER:
Mayo Clinic.

REFERENCES:
19

36. GOSSAGE, J. D. ACUTE PURULENT MENINGITIS IN CHILDREN. EXPERIENCE AT THE HOSPITAL FOR SICK CHILDREN, TORONTO. CAND. MED. ASS. J. 90: 615-617, (Mar. 7), 1964.
In a study of 68 cases of meningitis admitted during the year 1962, emphasis was placed on the etiological aspects of the disease, clinical manifestations, general principles of management of patients, and factors of significance in prognosis.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Pneumococcus
Meningococcus
Escherichia coli
Tubercle bacillus
Proteus mirabilis
Unknown
SEQUELAE:
Death.
RESEARCH CENTER:
Department of Pediatrics, The Hospital for Sick Children, Toronto.
REFERENCES:
0

37. GRANT, K. B., ICHAPORIA, R. N., JOSHI, S. K., AND WADIS, R. S. MENINGITIS DUE TO HAEMOPHILUS INFLUENZAE. J. ASS. PHYSICIANS INDIA 13: 619-626, (Aug.), 1965.
In a review of 25 cases of meningitis the incidence, clinical features, diagnosis, course, and treatment of the cases were discussed. Thirty-six percent of the cases were adults.
ETIOLOGIC AGENTS:
Haemophilus influenzae
SEQUELAE:
Death, mental retardation, hydrocephalus, hemiparesis, seizures.
RESEARCH CENTER:
Ruby Hall Nursing Home, Poona-1.
REFERENCES:
21

38. GUTHKELCH, A. N. SUBDURAL EFFUSIONS IN INFANCY. TWENTY FOUR CASES. BRIT. MED. J. 1: 233-239, (Jan. 31), 1953.
A study was presented which discussed 18 cases of subdural haematoma, five cases of subdural effusion complicating bacterial meningitis, and one case of subdural effusion complicating sagittal sinus thrombosis.
ETIOLOGIC AGENTS:
Streptococcus
Pneumococcus
Staphylococcus pyogenes
Unidentified
SEQUELAE:
Convulsions, death, behavior disturbance.
RESEARCH CENTER:
Royal Manchester Children's Hospital and The Department of Child Health, Manchester University.
REFERENCES:
0

39. HAARANEN, A., MIETTINEN, P., AND WASZ-HOCKERT, O. OPHTHALMOLOGICAL SYMPTOMS IN BACTERIAL AND SEROUS MENINGITIS. ANN. PAEDIAT. FENN. 7: 283-289, 1961.

A review of 100 children treated for serous meningitis between 1947 and 1959 and 100 children treated for bacterial meningitis between 1954 and 1959 indicated that disturbed function of the pupil was the most common symptom in fatal cases. The correlation of eye symptoms with other factors in the illnesses was discussed.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Staphyloccus aureus
Streptococcus pneumoniae
Unknown

SEQUELAE:
Death.

RESEARCH CENTER:
The Ophthalmic and Children's Hospitals University of Helsinki.

REFERENCES:
12

40. HAGGERTY, R. J., AND ZIAI, M. ACUTE BACTERIAL MENINGITIS. ADVANCES PEDIAT. 13: 129-181, 1964.

A review of several aspects of bacterial meningitis emphasized etiology, diagnosis and treatment. Special problems such as neonatal meningitis, recurrent meningitis, simultaneous multiple infection, prophylaxis and prevention were reviewed.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Neisseria meningitidis
Diplococcus pneumoniae
Unknown

SEQUELAE:
Mental retardation, organic behavior problems, deafness, hemiplegia, seizures, speech problems.

RESEARCH CENTER:
Department of Pediatrics, Harvard Medical School, and The Department of Medicine, Children's Hospital Medical Center, Boston, Massachusetts, and The Nemozee Hospital, Shiraz, Iran.

REFERENCES:
174

41. HAGGERTY, R. J. AND ZIAI, M. ACUTE BACTERIAL MENINGITIS IN CHILDREN. A CONTROLLED STUDY OF ANTIMICROBIAL THERAPY, WITH PARTICULAR REFERENCE TO COMBINATIONS OF ANTIBIOTICS. PEDIATRICS 25: 742-747, (May), 1960.

A study was designed to prove whether single drugs were more or less efficient than multiple drugs in therapy of meningitis. It was found that the results from the two approaches were similar. Multiple drugs were considered to be better if the etiologic agents were not identified immediately.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Neisseria meningitidis
Diplococcus pneumoniae
Unknown

SEQUELAE:
Hemiplegia, blindness, deafness, hydrocephalus, ataxia, questionable retardation, excessive withdrawal.

RESEARCH CENTER:
Department of Pediatrics, Harvard Medical School, and The Department of Medicine, Children's Hospital Medical Center, Boston.
REFERENCES:
10

42. HAUGE, A. M. F. DEFECTS FOLLOWING PURULENT MENINGITIS TREATED WITH SULFONAMIDES. NORD. MED. 37: 469-473, (Mar. 5), 1948.
A review of 108 cases of purulent meningitis with follow-up studies from one-half to eight years after the illness showed a high rate of sequelae even though the patients had been treated with serums or sulfonamides.
ETIOLOGIC AGENTS:
Meningococcus
SEQUELAE:
Hydrocephalus, amaurosis, total bilateral or unilateral deafness, organic plus psycho-neurasthenic defects, permanent and temporary organic defects.
RESEARCH CENTER:
Medical Department of Drammen Hospital, Drammen.
REFERENCES:
10

43. HERWEG, J. C., MIDDELKAMP, J. N., AND HARTMEN, A. F., SR. SIMULTANEOUS MIXED BACTERIAL MENINGITIS IN CHILDREN. J. PEDIAT. 63: 76-83, (Jul.), 1963.
Of 534 patients with bacterial meningitis, 20 were diagnosed as suffering from infection by two bacterial species. Most were young infants. The mortality and sequelae rates were high. Accurate and immediate diagnosis was an essential pre-requisite to prompt therapy and recovery.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Neisseria meningitidis
Diplococcus pneumoniae
Streptococcus pyogenes
Staphylococcus
Aerobacter aerogenes
Salmonella enteritidis
Pseudomonas aeruginosa
Escherichia coli
Mixtures of the above
SEQUELAE:
Death, mongolism, febrile convulsions, mental retardation, hydrocephalus, grand mal seizures, left hemiparesis, convulsive disorder, behavior disturbances, partial deafness, ataxia, low I. Q.
RESEARCH CENTER:
Department of Pediatrics, Washington University School of Medicine and The St. Louis Children's Hospital, St. Louis, Missouri.
REFERENCES:
24

44. HEYCOCK, J. B. AND NOBLE, T. C. PYOGENIC MENINGITIS IN INFANCY AND CHILDHOOD. BRIT. MED. J. 5384: 658-662, (Mar. 14), 1964.
A study of 337 cases of pyogenic meningitis which occurred between 1950 and 1962 in children of newborn age to 12 years old revealed decreases in the occurrence of meningococcal meningitis, while the numbers of cases due to H. influenzae

and pneumoccus increased.
ETIOLOGIC AGENTS:
Meningococcus
Hemophilus influenzae
Pneumococcus
"Others"
SEQUELAE:
Subdural effusion, mental retardation, epilepsy, hydrocephalus, deafness.
RESEARCH CENTER:
Sunderland Children's Hospital and Sunderland Infectious Diseases Hospital.
REFERENCES:
5

45. HINTON, G. G. POSTNATAL ORGANIC CAUSES OF MENTAL RETARDATION. CANAD. MED. ASS. J. 87: 501-507, (Sept. 1), 1962.
A study of organic causes of mental retardation included meningitis with late diagnosis, incomplete identification of the infecting agent, and the improper selection of therapy listed as major causes of the sequelae of meningitis.
ETIOLOGIC AGENTS:
Pneumococcus
Meningococcus
Hemophilus influenzae
Tubercle bacillus
Streptococcus
Staphylococcus
Unknown
SEQUELAE:
Mental retardation.
RESEARCH CENTER:
Children's Psychiatric Research Institute, London, Ontario, London Crippled Children's Treatment Centre, London, Ontario, and Ontario Hospital School, Cedar Springs.
REFERENCES:
35

46. HOYNE, A. L. AND BROWN, R. H. SEVEN HUNDRED AND TWENTY-SEVEN MENINGOCOCCIC CASES. AN ANALYSIS. ANN. INT. MED. 28: 248-259, (Feb.), 1948.
A detailed discussion of 727 cases of meningitis treated at the Municipal Contagious Disease Hospital emphasized sulfonamide and penicillin therapy. In general, the highest mortality rate occurred in the youngest and oldest age groups with increased probability of death for patients who were comatose on admission.
ETIOLOGIC AGENTS:
Meningococcus
SEQUELAE:
Death
RESEARCH CENTER:
Municipal Contagious Disease Hospital and Chicago Health Department.
REFERENCES:
12

47. HOYNE, A. L. AND HERZON, H. STREPTOCOCCIC VIRIDANS MENINGITIS. A REVIEW OF THE LITERATURE AND REPORT OF NINE RECOVERIES. ANN. INT. MED. 33: 879-902, (Oct.), 1950.
A detailed analysis of all reported cases of meningitis due to Streptococcus viridans included clinical observations,

prognosis, and treatment.
ETIOLOGIC AGENTS:
Streptococcus viridans
SEQUELAE:
Death, limping, atrophy of the right arm, psychosis, headaches with vomiting.
RESEARCH CENTER:
The Municipal Contagious Disease Hospital and The Cook County Contagious Hospital.
REFERENCES:
71

48. HUTCHISON, P. A. AND KOVACS, M. C. THE SEQUELAE OF ACUTE PURULENT MENINGITIS IN CHILDHOOD. CANAD. MED. ASS. J. 89: 158-166, (Jul. 27), 1963.
A study of 41 children treated for meningitis between 1952 and 1956 indicated a positive correlation between severity of illness and neuropsychiatric sequelae, as well as defective intelligence, and psychological evidence of brain damage.
ETIOLOGIC AGENTS:
Meningococcus
Hemophilus influenzae
Pneumococcus
Unknown
SEQUELAE:
Death, organic brain damage, neurological abnormality, electroencephalographic abnormality, and defective brain damage.
RESEARCH CENTER:
Departments of Pediatrics and Psychiatry, Children's Hospital, Winnipeg, and The Faculty of Medicine, University of Manitoba.
REFERENCES:
24

49. JONES, H. E. SUBDURAL EFFUSIONS IN PURULENT MENINGITIS. LANCET 1: 891-893, (May 3), 1952.
Subdural effusions were indicated by continuing or rising pyrexia associated with restless anxiety and bulging fontanelle in six cases of meningitis. Subdural taps were performed when the patient failed to respond to treatment.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Meningococcus
Unknown
SEQUELAE:
Subdural effusions.
RESEARCH CENTER:
The Royal Hospital, Wolverhampton.
REFERENCES:
7

50. KAGAN, B. M., HESS, J. H., MIRMAN, B., AND LUNDEEN, E. MENINGITIS IN PREMATURE INFANTS. PEDIATRICS 4: 479-483, (Oct.), 1949.
A case study was presented for the one survivor out of 12 premature infants admitted for meningitis between 1928 and 1947. The early symptoms were cyanosis, fever, and vomiting, while convulsions and bulging fontanelle occurred much later.
ETIOLOGIC AGENTS:
Escherichia coli

Escherichia coli and pneumococcus
Escherichia coli and Klebsiella pneumoniae
Aerobacter aerogenes and Escherichia coli
Pneumococcus
Streptococcus
Non-hemolytic streptococcus and Klebsiella pneumoniae

SEQUELAE:
Death.

RESEARCH CENTER:
Kunstadter Laboratories for Pediatric Research and The Premature Station, Sarah Morris Hospital, Michael Reese Hospital, Chicago, Illinois.

REFERENCES:
12

51. KAUHTIO, J. AND JANSSON, E. ACUTE BACTERIAL MENINGITIS IN ADULTS. REVIEW OF 95 CASES TREATED IN 1937-56 AT THE AURORA HOSPITAL. ANN. MED. INTERN. FENN. 48: 33-43, 1959.

In a study of 95 patients 15 years of age and older who had bacterial meningitis, meningococcus was the most common agent among adolescents and adults under 40. A stiff neck was a diagnostic sign in every case. Intrathecal therapy and the simultaneous administration of several drugs were discussed.

ETIOLOGIC AGENTS:
Meningococcus
Pneumococcus
Hemophilus influenzae
Staphylococcus aureus
Escherichia coli
Streptococcus
Unknown

SEQUELAE:
Deafness, transient ocular paralysis, transient facial paralysis, motor paralysis.

RESEARCH CENTER:
The Municipal Aurora Hospital, IV Division, Helsinki.

REFERENCES:
19

52. KAUHTIO, J., PAATELA, M., AND RANTASALO, I. ACUTE BACTERIAL MENINGITIS IN CHILDREN. SURVEY OF 379 CASES TREATED FROM 1946-57. NORD. MED. 61: 177-180, (Jan. 29), 1959.

In a study of 379 patients, the age of the patient and the amount of time before initiating therapy were factors in determining the outcome of the bacterial meningitis. A suitable antibiotic was chosen by examining direct smears and cultures of cerebrospinal fluid and blood.

ETIOLOGIC AGENTS:
Neisseria meningitidis
Streptococcus pneumoniae
Hemophilus influenzae
"Others"

SEQUELAE:
Death.

RESEARCH CENTER:
Children's Hospital, University of Helsinki and The Aurora Hospital, Helsinki.

REFERENCES:
16

53. KEITEL, J. G., HANANIAN, J., TING, R., PRINCE, L. N., AND

RANDALL, E. MENINGITIS IN THE NEWBORN INFANT. J. PEDIAT. 61: 39-43, (Jul.), 1962.

A report of three cases of neonatal death from meningitis due to Group B streptococcus and pneumococcus was presented. In each case, the same organism was found in the cervix of the mother.

ETIOLOGIC AGENTS:
Streptococcus
Pneumococcus

SEQUELAE:
Death.

RESEARCH CENTER:
Departments of Pediatrics, Obstetrics, and Pathology, Jefferson Medical College, Philadelphia, Pennsylvania.

REFERENCES:
40

54. KENNEDY, A. C. (EDITOR) SEQUELAE OF MENINGITIS. SCOT. MED. J. 11: 147-149, (Apr.), 1966.

A discussion of the increasing incidence of sequelae in patients who survive meningitis emphasized diagnosis and treatment as factors vital to the prevention of sequelae.

ETIOLOGIC AGENTS:
Not listed.

SEQUELAE:
Intellectual loss, deafness, behavior problems, blindness, hydrocephalus.

RESEARCH CENTER:
None listed.

REFERENCES:
2

55. KERR, F. W., KING, R. B., AND MEAGHER, J. N. BRAIN ABSCESS. A STUDY OF 47 CONSECUTIVE CASES. J.A.M.A. 168: 868-872, (Oct. 18), 1958.

Between 1945 and 1956 two cases of meningitis were isolated from 47 cases of cerebral abscess. The source and type of infection, symptomatology, and diagnostic methods were discussed. Deterioration in consciousness was important in the timing of operations and in diagnosis.

ETIOLOGIC AGENTS:
Streptococcus
Staphylococcus
Proteus
Hemophilus influenzae
"Other"

SEQUELAE:
Death, epilepsy, neurologic deficit.

RESEARCH CENTER:
Department of Surgery, Division of Neurological Surgery, Washington University School of Medicine, St. Louis, Missouri.

REFERENCES:
13

56. KINNEY, C. E. LOSS OF SPEECH DUE TO MENINGITIC DEAFNESS. ARCH. OTOLARYNG. 47: 303-309, (Mar.), 1948.

In a review of 29 cases of meningitic deafness loss of speech was frequent. The amount of speech loss was proportional to the age of the child and the amount of speech training previous to the illness.

ETIOLOGIC AGENTS:
Meningococcus
Hemophilus influenzae
Pneumococcus
Streptococcus
SEQUELAE:
Deafness, speech loss.
RESEARCH CENTER:
Cleveland.
REFERENCES:
0

57. KNEEBONE, G. M. PURULENT MENINGITIS IN CHILDHOOD. MED. J. AUST. 48(2): 124-130, (Jul. 22), 1961.
In a review of 237 cases of meningitis treated between 1953 and 1959, the incidence, clinical picture, diagnosis, treatment, and sequelae of the illness were discussed.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Meningococcus
Pneumococcus
Unknown
"Other"
SEQUELAE:
Death, deafness, paraplegia, hemiplegia.
RESEARCH CENTER:
The Department of Child Health, University of Adelaide.
REFERENCES:
15

58. KOCH, R., KOGUT, M., AND ASAY, L. MANAGEMENT OF BACTERIAL MENINGITIS IN CHILDREN. PEDIAT. CLIN. N. AMER. 8: 1177-1197, (Nov.), 1961.
The occurrence of meningitis in 235 children was discussed in regard to the pathogenesis, etiology, diagnosis, laboratory examinations, and treatment of the illness.
ETIOLOGIC AGENTS:
Meningococcus
Pneumococcus
Hemophilus influenzae
Staphylococcus
Streptococcus
Escherichia coli
Salmonella
Pseudomonas
SEQUELAE:
Death, residual neurologic damage, mental retardation, deafness, seizure disorder, cerebral palsy, behavior disorder, speech defect, precocious puberty.
RESEARCH CENTER:
Los Angeles Children's Hospital.
REFERENCES:
60

59. KRAVITZ, H. SEX DISTRIBUTION OF HOSPITALIZED CHILDREN WITH ACUTE RESPIRATORY DISEASES, GASTROENTERITIS AND MENINGITIS. CLIN. PEDIAT. (PHILA.) 4: 484-491, (Aug.), 1965.
In this study more males than females were admitted for these diseases, although the difference decreased with advancing age.
ETIOLOGIC AGENTS:
Not listed.

SEQUELAE:
Death.
RESEARCH CENTER:
The Departments of Pediatrics, St. Francis Hospital, Evanston, Illinois and Lutheran General Hospital, Park Ridge, Illinois.
REFERENCES:
28

60. LAWSON, D., METCALFE, M., AND PAMPIGLIONE, G. MENINGITIS IN CHILDHOOD. BRIT. MED. J. 5434: 557-562, (Feb. 27), 1965.
A retrospective study of 102 patients who had suffered from bacterial and non-bacterial meningitis discussed early diagnosis, antibacterial agents, and antibiotic therapy. Below average intelligence after the illness was seen most often in children less than one year old.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Meningococcus
Pneumococcus
Streptococcus
Unknown
SEQUELAE:
Emotional, behavioral, and scholastic difficulties, deafness, death.
RESEARCH CENTER:
Queen Mary's Hospital for Children, Carshalton.
REFERENCES:
6

61. LAZARUS, J. M., SELLERS, D. P., AND MARINE, W. M. MENINGITIS DUE TO THE GROUP B BETA-HEMOLYTIC STREPTOCOCCUS. NEW ENG. J. MED. 272: 146-147, (Jan. 21), 1965.
A case was reported of a 56 year old woman suffering from streptococcal meningitis which followed a toe lesion. Escherichia coli was, also, cultured from the urine and the toe lesion.
ETIOLOGIC AGENTS:
Escherichia coli
B-hemolytic Streptococcus
SEQUELAE:
Death.
RESEARCH CENTER:
Departments of Internal Medicine and Preventive Medicine, Emory University School of Medicine, and the Medical Service, Henry Grady Memorial Hospital.
REFERENCES:
10

62. LEPPER, M. H., BLATT, N. H., WEHRLE, P. R., AND SPIES, H. W. TREATMENT OF BACTERIAL MENINGITIS OF UNUSUAL ETIOLOGY AND PURULENT MENINGITIS OF UNKNOWN ORIGIN. AM. J. DIS. CHILD. 85: 295-302, (Mar.), 1953.
A discussion was presented concerning the treatment of meningitis where the etiologic agent was known and also where it was unknown.
ETIOLOGIC AGENTS:
Streptococcus
Staphylococcus aureus
Klebsiella pneumoniae
Listeria
Escherichia coli
Alcaligenes
Pseudomonas

Corynebacterium
Unknown

SEQUELAE:
Death.

RESEARCH CENTER:
Department of Medicine, University of Illinois, College of Medicine, and The Municipal Contagious Disease Hospital.

REFERENCES:
0

63. LEVINSON, A. AND HARTENSTEIN, H. INTRACRANIAL CALCIFICATION FOLLOWING PNEUMOCOCCIC MENINGITIS. J. PEDIAT. 38: 624-629, (May), 1951.

A case study was presented in which a patient two months old was treated for pneumococcal meningitis. The child subsequently developed intracranial calcification at nine months.

ETIOLOGIC AGENTS:
Pneumococcus

SEQUELAE:
Deafness, blindness, mental and motor retardation.

RESEARCH CENTER:
Children's Division of The Cook County Hospital.

REFERENCES:
13

64. LINCOLN, E. M. AND SIFONTES, J. E. SYMPOSIUM ON NERVOUS AND MENTAL DISEASES. TUBERCULOUS MENINGITIS IN CHILDREN. M. CLIN. NORTH AMERICA 37: 345-362, (Mar.), 1953.

A study of patients between 4 months and 13 years of age who were treated for tuberculous meningitis included case studies, explanations of treatment, explanations of spinal fluid changes, and diagnosis problems.

ETIOLOGIC AGENTS:
Tubercle bacillus

SEQUELAE:
Loss of hearing, residual hemiplegias, footdrop, behavior difficulties.

RESEARCH CENTER:
Department of Pediatrics, New York University College of Medicine and the Chest Clinic of the Children's Medical Service, Bellevue Hospital, New York City.

REFERENCES:
19

65. LORBER, J. LONG-TERM FOLLOW-UP OF 100 CHILDREN WHO RECOVERED FROM TUBERCULOUS MENINGITIS. PEDIATRICS 28: 778-791, (Nov.), 1961.

A follow-up of 100 children treated between the years 1947 and 1955 for tuberculous meningitis was presented. Information from the school and from intelligence, neurologic, and electroencephalographic tests was used to assess the child's development.

ETIOLOGIC AGENTS:
Tubercle bacillus

SEQUELAE:
Deafness, convulsions, facial weakness, combined defects, mental retardation, blindness.

RESEARCH CENTER:
Department of Child Health, University of Sheffield, England.

REFERENCES:
16

66. LORBER, J. AND BRUCE, A. M. PROSPECTIVE CONTROLLED STUDIES IN BACTERIAL MENINGITIS IN SPINAL BIFIDA CYSTICA. DEVELOP. MED. CHILD. NEUROL. 5: 146-153, (Apr.), 1963.

In an analysis of the cases of infants with meningomyelocele and hydrocephalus, the methods of treatment and the occurrence of ventriculitis were discussed.

ETIOLOGIC AGENTS:

Klebsiella/Aerobacter
Escherichia coli
Pseudomonas pyocyanea
Staphylococcus aureus
Streptococcus viridans
Streptococcus faecalis
Proteus
Staphylococcus albus
Unknown

SEQUELAE:

Death.

RESEARCH CENTER:

The Department of Child Health, The University of Sheffield, and The Children's Hospital, Sheffield.

REFERENCES:

2

67. LORBER, J. AND PICKERING, D. INCIDENCE AND TREATMENT OF POST-MENINGITIC HYDROCEPHALUS IN THE NEWBORN. ARCH. DIS. CHILD. 41: 44-50, (Feb.), 1966.

In 19 cases of neonatal meningitis the patient also developed post-meningitic hydrocephalus. Eighteen of these patients were treated by ventriculo-caval shunt. A complete history was given for each case.

ETIOLOGIC AGENTS:

Escherichia coli
Proteus
Meningococcus
Hemophilus influenzae
Staphylococcus aureus
Staphylococcus albus
Pneumococcus
Listeria

SEQUELAE:

Death, hydrocephalus, retardation, convulsions, blindness.

RESEARCH CENTER:

The Department of Child Health, University of Sheffield, and The Children's Hospital, Sheffield.

REFERENCES:

11

68. LORBER, J. AND SEGALL, M. BACTERIAL MENINGITIS IN SPINA BIFIDA CYSTICA. A REVIEW OF 37 CASES. ARCH. DIS. CHILD. 37: 300-308, (Jun.), 1962.

Thirty-seven cases of bacterial meningitis in children with spina bifida cystica were related to ascending infection from the meningomyelocele, or to the investigation or treatment of the associated hydrocephalus. Treatment and diagnosis were also discussed.

ETIOLOGIC AGENTS:

Escherichia coli
Pseudomonas pyocyanea
Aerobacter aerogenes
Proteus morgani
Staphylococcus aureus
B-haemolytic Streptococcus

Streptococcus faecalis

SEQUELAE:

Mental retardation, gross hydrocephalus, spastic quadriplegia, severe optic atrophy, apparent blindness.

RESEARCH CENTER:

The Department of Child Health, The Children's Hospital, Sheffield.

REFERENCES:

11

69. LUDER, J. AND TOMSON, P. R. SALMONELLA MENINGITIS IN THE NEWBORN. POST GRAD. MED. J. 39: 100-102, (Feb.), 1963.

In a case report of a newborn infant suffering from a Salmonella typhimurium, the possibility of transfer of infection from the mother during pregnancy was suggested. The treatment for this case was also discussed.

ETIOLOGIC AGENTS:

Salmonella typhimurium
Staphylococcus aureus

SEQUELAE:

Death.

RESEARCH CENTER:

Not listed.

REFERENCES:

4

70. MACCABE, J. J. HYDROCEPHALUS SECONDARY TO MENINGITIS. DEVELOP. MED. CHILD NEUROL. 4: 268-269, (Jun.), 1962.

Fourteen cases of hydrocephalus were discussed as sequelae to tuberculous and meningococcal meningitis.

ETIOLOGIC AGENTS:

Meningococcus
Tubercle bacillus

SEQUELAE:

Intellectual impairment, death, hydrocephalus.

RESEARCH CENTER:

Department of Surgical Neurology, Edinburgh.

REFERENCES:

0

71. MCCAY, V. MENINGITIS AND DEAFNESS. THE PROBLEM, ITS PHYSICAL, AUDIOLOGICAL, PSYCHOLOGICAL, AND EDUCATIONAL MANIFESTATIONS IN DEAF CHILDREN. THE LARYNGOSCOPE 77: 1856-1874, (Oct.), 1967.

One hundred twenty-eight deaf children who had suffered from purulent meningitis were studied and examined on the following variables: physical disabilities and demographic factors, audiometric responses, psychodiagnostic evidence of neurological impairment, communication skills, psychological adjustment, educational achievement, and intelligence. Age at onset of deafness was a vital factor in determining further intellectual, educational, and psychological advancement.

ETIOLOGIC AGENTS:

Not listed.

SEQUELAE:

Deafness, cerebral palsy, aphasia, mental retardation, major visual pathology, emotional disturbance, orthopedic difficulties.

RESEARCH CENTER:

The Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital and Medical Center, Chicago, Illinois.

REFERENCES:

19

72. MCDONALD, R. PURULENT (NON-MENINGOCOCCAL) MENINGITIS IN CHILDREN. S. AFR. MED. J. 29: 782-785, (Sept. 25), 1965.

A review of 281 cases of purulent meningitis occurring between 1951 and 1964 showed that delay in admission to the hospital, early age, convulsions, and coma increased the chances of death or sequelae.

ETIOLOGIC AGENTS:
Pneumococcus
Hemophilus influenzae
Miscellaneous
No organism identified

SEQUELAE:
Spastic paralysis, hypotonia, mental retardation, hydrocephalus, cerebral atrophy, blindness.

RESEARCH CENTER:
Groote Schuur Hospital.

REFERENCES:
23

73. MCKAY, R. J., JR., INGRAHAM, F. D., AND MATSON, D. D. SUBDURAL FLUID COMPLICATING BACTERIAL MENINGITIS. J.A.M.A. 152: 387-391, (May 30), 1953.

In a study of 50 patients, stress was placed on the necessity of draining the subdural fluid to enable complete recovery from the illness. The conditions under which surgery was required were described.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Pneumococcus
Meningococcus
Hemophilus influenzae and pneumococcus
Staphylococcus
Tubercle bacillus

SEQUELAE:
Not listed.

RESEARCH CENTER:
Department of Pediatrics and Surgery, Harvard Medical Center, Boston, Division of Pediatrics, University of Vermont, College of Medicine, and the Department of Pediatrics, Mary Fletcher Hospital, Burlington, Vermont.

REFERENCES:
0

74. MCKENDRICK, G. D. W. PNEUMOCOCCAL MENINGITIS. LANCET 2: 512-513, (Sept. 11), 1954.

In a report of 35 cases of pneumococcal meningitis treated between the years 1947 and 1953 the mortality rate and the method of treatment were discussed.

ETIOLOGIC AGENTS:
Pneumococcus

SEQUELAE:
Death.

RESEARCH CENTER:
Ham Green Hospital, Bristol.

REFERENCES:
11

75. MCKENDRICK, G. D. W. PYOGENIC MENINGITIS. LANCET 2: 510-512, (Sept. 11), 1954.

In an anlaysis of 107 cases of pyogenic meningitis admitted

between 1948 and 1953, the age, history, state of consciousness on admission, and duration of pyrexia were given.

ETIOLOGIC AGENTS:
- Meningococcus
- Pneumococcus
- Hemophilus influenzae
- Staphylococcus
- Streptococcus
- Proteus
- Mixed
- Unknown

SEQUELAE:
- Death.

RESEARCH CENTER:
- Ham Green Hospital, Bristol.

REFERENCES:
- 11

76. MCNIEL, J. R. ACUTE BACTERIAL MENINGITIS AS SEEN IN CHILDREN OF EASTERN SAUDI ARABIA. CLIN. PEDIAT. (PHILA.) 5: 437-438, (Jul.), 1966.

In a survey of all the children under 13 years of age admitted to the Center between the years 1956 and 1964 the age distribution, symptoms, and physical findings were discussed.

ETIOLOGIC AGENTS:
- Meningococcus
- Pneumococcus
- Staphylococcus
- Hemophilus influenzae
- Streptococcus
- Escherichia coli
- Salmonella
- Pseudomonas
- Pseudomonas and Escherichia coli
- Undetermined

SEQUELAE:
- Permanent residual neurologic defects, severe brain damage, convulsions, impaired vision, hydrocephalus.

RESEARCH CENTER:
- Dhahran Health Center of the Arabian American Oil Company.

REFERENCES:
- 3

77. MCNIEL, J. R. MENINGITIS IN EASTERN SAUDI ARABIA. CHILDHOOD MENINGITIS. MIDDLE EAST MED. J. 2: 13-17, (Jan.-Apr.), 1965.

A review of all patients under ten years of age treated for meningitis between 1956 and 1963 discussed the prominent symptoms, physical and spinal fluid findings, and sequelae of the illness.

ETIOLOGIC AGENTS:
- Pneumococcus
- Meningococcus
- Staphylococcus
- Streptococcus
- Hemophilus influenzae
- Escherichia coli
- Escherichia coli and pseudomonas
- Salmonella
- Not specified
- Not determined

SEQUELAE:
- Death, transient paresis of left arm, convulsions, optic

atrophy, spastic transient visual impairment, hydrocephalus, subdural effusions.

RESEARCH CENTER:

Dhahran.

REFERENCES:

7

78. MATHIES, A. W., JR., HODGMAN, J., AND IVLER, D. HEMOPHILUS INFLUENZAE MENINGITIS IN A PREMATURE INFANT. PEDIATRICS 35: 791-792, (May), 1965.

A case study of a three day old infant who died from meningitis due to H. influenzae was presented. Failure of the mother to experience the customary immunizing infection and thus the lack of protection in the infant seemed to be important factors in the illness.

ETIOLOGIC AGENTS:

Hemophilus influenzae

SEQUELAE:

Death.

RESEARCH CENTER:

Premature Nursery Service, Los Angeles County General Hospital, and Department of Pediatrics, University of Southern California School of Medicine.

REFERENCES:

10

79. MATTHEWS, E. C. SUBDURAL EFFUSIONS COMPLICATING BACTERIAL MENINGITIS. A PEDIATRIC REVIEW. OHIO MED. J. 50: 1154-1155, (Dec.), 1954.

In an analysis of subdural effusions which complicated meningitis, the pathogenesis, etiologic factors, characteristics, symptoms, and treatment of these effusions were discussed.

ETIOLOGIC AGENTS:

Hemophilus influenzae
Pneumococcus
Meningococcus

SEQUELAE:

Subdural effusions.

RESEARCH CENTER:

Department of Pediatrics, University of Cincinnati College of Medicine.

REFERENCES:

6

80. MELIGRANA, F., HAWKS, H., AND MAROTTA, T. HEMOPHILUS INFLUENZAE SEPTICEMIA WITH POLYARTHRITIS AND MENINGITIS IN AN ADULT. CANAD. MED. ASS. J. 89: 132-134, (Jul. 20), 1963.

A case report of a 65 year old woman was presented. Her progress was complicated by a super-imposed staphylococcus pneumonia with septicemia.

ETIOLOGIC AGENTS:

Hemophilus influenzae
Staphylococcus

SEQUELAE:

Death.

RESEARCH CENTER:

St. Michael's Hospital, Toronto.

REFERENCES:

12

81. MIDDELKAMP, J. N. BACTERIAL AND VIRAL MENINGITIS IN INFANTS

AND CHILDREN. J. KENTUCKY MED. ASS. 61: 569-572, (Jul.), 1963.
In a review of the 465 patients treated for meningitis, the difficulty in diagnosing meningitis in children and the need for early and accurate treatment was presented. Detailed discussions of viral and bacterial meningitis were also included.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Meningococcus
Pneumococcus
Mixed
Enteric bacilli
Streptococcus and Staphylococcus
Unknown
SEQUELAE:
Death.
RESEARCH CENTER:
Department of Pediatrics, Washington University School of Medicine and St. Louis Children's Hospital, St. Louis, Missouri.
REFERENCES:
5

82. NELSON, J., CLYNE, R. M. AND SHARNOFF, J. G. BILATERAL SUBDURAL HEMATOMA--AN UNUSUAL COMPLICATION OF MENINGOCOCCUS MENINGITIS. ANN. INT. MED. 25: 862-867, (Nov.), 1946.
A case was reported of a 41 year old male who began to recover from meningitis, then suddenly lapsed into a coma. The autopsy revealed hemorrhaging into the subdural space.
ETIOLOGIC AGENTS:
Meningococcus
SEQUELAE:
Death.
RESEARCH CENTER:
The Medical Service of Dr. Kenneth Taylor, Lincoln Hospital, New York City, New York.
REFERENCES:
9

83. NICKERSON, G. AND MACDERMOT, P. N. PSYCHOMETRIC EVALUATION AND FACTORS AFFECTING THE PERFORMANCE OF CHILDREN WHO HAVE RECOVERED FROM TUBERCULOUS MENINGITIS. PEDIATRICS 27: 68-82, (Jan.), 1961.
A study was presented of 54 children who suffered from tuberculous meningitis between the years 1950 and 1955. Factors detrimental to recovery seemed to be prolonged isolation, unfavorable social circumstances, and sensory-motor sequelae. It appeared that even while suffering from apparent sequelae, a child may progress rapidly in a secure home with a good social and cultural environment.
ETIOLOGIC AGENTS:
Tubercle bacillus
SEQUELAE:
Mental deficiency, deafness, blindness, motor deficiency.
RESEARCH CENTER:
Unit for Treatment of Tuberculous Meningitis, Alexandra Hospital, Montreal.
REFERENCES:
19

84. NICKERSON, G., MORGANTE, O., MACDERMOT, P. N., AND ROSS, S. G. TUBERCULOUS MENINGITIS. AM. REV. TUBERC. 76: 832-851, (Nov.), 1957.

In a description of the various methods of treatment for 54 patients suffering from tuberculous meningitis between the years 1950 and 1955, the successful use of purified protein derivative PPD was discussed. The bacteriology, pathology, electroencephalographic and psychometric follow-up observations were included.

ETIOLOGIC AGENTS:
Tubercle bacillus

SEQUELAE:
Deafness, loss of vestibular function, orthopedic deformities, atrophy of the optic nerve, intellectual impairment, death.

RESEARCH CENTER:
Tuberculosis Unit of the Alexandra Hospital for Communicable Diseases, Department of Pediatrics and Bacteriology, McGill University, Montreal, Quebec.

REFERENCES:
17

85. NOGUCHI, T. T., NACHUM, R., AND LAWRENCE, C. A. ACUTE PURULENT MENINGITIS CAUSED BY CHROMOGENIC NEISSERIA. A CASE REPORT AND LITERATURE REVIEW. MED. ARTS SCI. 17: 11-18, (first quarter), 1963.

In a case report of an eight year old male who died of acute purulent meningitis, the causative agent was a rare type. The symptoms previous to hospitalization were coughing and choking during feedings and a fever.

ETIOLOGIC AGENTS:
Neisseria flava

SEQUELAE:
Death.

RESEARCH CENTER:
Los Angeles.

REFERENCES:
67

86. NYHAN, W. L. AND RICHARDSON, F. COMPLICATIONS OF MENINGITIS. ANN. REV. MED. 14: 243-260, 1963.

A discussion of some of the problems associated with meningitis was presented. Included were discussions on mortality, complications (acute and chronic) and therapy.

ETIOLOGIC AGENTS:
Pneumococcus
Meningococcus
Hemophilus influenzae
Mycobacterium tuberculosis
Flavobacterium meningosepticum
Listeria monocytogenes
Salmonella
Leptospira canicola

SEQUELAE:
Death, hydrocephalus, deafness, blindness, mental deficiency, convulsions.

RESEARCH CENTER:
Department of Pediatrics, The Johns Hopkins University School of Medicine, Baltimore, Maryland.

REFERENCES:
116

87. OLAFSSON, M., LEE, Y. C., AND ABERNETHY, T. J. MIMA POLYMORPHA MENINGITIS. REPORT OF A CASE AND REVIEW OF THE LITERATURE. N. ENGLAND J. M. 258: 465-470, (Mar. 6), 1958.

In a case study and review of the literature, the symptoms, complications in diagnosis, and similarity between Mimeae and Neisserieae infections were discussed.

ETIOLOGIC AGENTS:

Mima polymorpha
Diplococcus pneumoniae

SEQUELAE:

Death.

RESEARCH CENTER:

Department of Medicine, Central Dispensary and Emergency Hospital, Washington, D. C.

REFERENCES:

27

88. PAI, M. N. PERSONALITY DEFECTS AND PSYCHIATRIC SYMPTOMS AFTER CEREBROSPINAL FEVER IN CHILDHOOD: MENINGOCOCCAL ENCEPHALOPATHY. J. MENT. SC. 92: 389-410, (Apr.), 1946.

In a study of 29 patients who had suffered from meningococcal meningitis, some of the survivors were characterized by intellectual deterioration, defects of personality, changes in character and disorders of conduct. Organic changes in the brain were suggested as causes of these symptoms.

ETIOLOGIC AGENTS:

Meningococcus

SEQUELAE:

Nervousness, headaches, fainting attacks, depression, dizziness, fatigue, self-consciousness, stammering, fear of the dark, timidity, enuresis, delinquency, nailbiting, dependency, poor sleep, sleepwalking, over-emotionality, defective vision, poor physique, palpitation, precordial pain, lisping, facial asymmetry, bilateral optic atrophy.

RESEARCH CENTER:

Mill Hill Emergency Hospital, London.

REFERENCES:

58

89. PAUL, S. S. PYOGENIC MENINGITIS IN CHILDREN. A STUDY OF 48 CASES. INDIAN J. CHILD HEALTH 12: 98-103, (Feb.), 1963.

A review of 48 cases of pyogenic meningitis which occurred between 1956 and 1959 was presented. The majority of patients were under three years of age, had respiratory infections before entering the hospital and came from low standard living conditions. The treatment was discussed for each organism.

ETIOLOGIC AGENTS:

Streptococcus pneumoniae
Hemophilus influenzae
Neisseria meningitidis
Salmonella
Streptococcus haemolyticus
Unidentified

SEQUELAE

Death.

RESEARCH CENTER:

Kalavti Saran Children's Hospital, Lady Hardinge Medical College, New Delhi.

REFERENCES:

25

90. PETERSDORF, R. G. AND LUTTRELL, C. N. STUDIES ON THE PATHOGENESIS OF MENINGITIS. I. INTRATHECAL INFECTION. J. CLIN. INVEST. 41: 311-319, (Feb.), 1962.

A detailed report of an experiment in which 48 dogs were

injected with a strain of Diplococcus pneumoniae was presented. Details concerning the progress of their illness and the findings at autopsy were described.

ETIOLOGIC AGENTS:

Diplococcus pneumoniae

SEQUELAE:

Death.

RESEARCH CENTER:

Divisions of Allergy and Infectious Disease and Neurological Medicine, Department of Medicine, Johns Hopkins School of Medicine, Baltimore, Maryland, and University of Washington School of Medicine, Seattle, Washington.

REFERENCES:

12

91. PLATOU, R. V., RINKER, A., AND DERRICK, J. ACUTE SUBDURAL EFFUSIONS AND LATE SEQUELAE OF MENINGITIS. PEDIATRICS 23: 962-971, (May), 1959.

In a retrospective study of 343 patients under the age of three years, the frequency and severity of neurologic sequelae were positively associated with the presence of early subdural collections which were most common in the youngest patients.

ETIOLOGIC AGENTS:

Hemophilus influenzae
Pneumococcus
Meningococcus
Unknown
"Others"

SEQUELAE:

Death, subdural effusions, behavioral disturbances, emotional instability, poor weight or height gains, palsies of the extra-ocular muscles, hearing defects, mild monoplegia, hemiparesis, severe mental retardation, serious convulsive disorders.

RESEARCH CENTER:

Department of Pediatrics, Tulane Medical School and The Charity Hospital of Louisiana.

REFERENCES:

15

92. PRATHER, G. W. AND SMITH M. H. D. CHLORAMPHENICOL IN THE TREATMENT OF HEMOPHILUS INFLUENZAE MENINGITIS. J.A.M.A. 143: 1405-1406, (Aug. 19), 1950.

A study was presented of 15 patients treated for meningitis between 1949 and 1950. The treatment and results were discussed for all the patients.

ETIOLOGIC AGENTS:

Hemophilus influenzae

SEQUELAE:

Transient leg and arm weakness.

RESEARCH CENTER:

Department of Pediatrics, Tulane Medical School and The Charity Hospital of Louisiana at New Orleans.

REFERENCES:

11

93. PROSNITZ, L. R. DEAFNESS FOLLOWING HEMOPHILUS INFLUENZAE MENINGITIS. ARCH. INTERN. MED. (CHICAGO) 113: 415-417, (Mar.), 1964.

A retrospective case study concerning the occurrence of bilateral permanent deafness as a result of meningitis due to Hemophilus influenzae was presented.

ETIOLOGIC AGENTS:
Hemophilus influenzae
SEQUELAE:
Bilateral permanent deafness.
RESEARCH CENTER:
Medical Service, Mary Hitchcock Memorial Hospital.
REFERENCES:
13

94. QUAADE, F. MENINGITIS IN THE AGED. GERIATRICS 18: 860-864, (Nov.), 1963.
This study included 30 persons aged 65 or older who were admitted to the hospital between 1949 and 1961. A discussion was presented of the similarity of the symptoms of meningitis and other illnesses in this age group. Methods of treatment were also described.
ETIOLOGIC AGENTS:
Pneumococcus
Staphylococcus aureus
Listeria monocytogenes
Unknown
Coli
Meningococcus
SEQUELAE:
Death, dementia.
RESEARCH CENTER:
Bispebjerg Hospital, Copenhagen, Denmark.
REFERENCES:
4

95. RANTASALO, I. AND KAUHTIO, J. ACUTE BACTERIAL MENINGITIS IN CHILDREN. II. SOME ASPECTS OF 257 CASES ADMITTED TO CHILDREN'S HOSPITAL, UNIVERSITY OF HELSINKI, IN 1946-1955. ANN. PAEDIAT. FENN. 4: 80-91, 1958.
In a review of 257 cases of acute bacterial meningitis those factors important in determining the outcome of the illness were reported to be age of the patient, season, duration of illness before admission to the hospital, occurrence of convulsions and unconsciousness before admission, cell-count of the cerebrospinal fluid, cutaneous hemorrhages.
ETIOLOGIC AGENTS:
Neisseria meningitidis
Streptococcus pneumoniae
Hemophilus influenzae
Unknown
"Others"
SEQUELAE:
Death.
RESEARCH CENTER:
Children's Hospital, University of Helsinki.
REFERENCES:
1

96. RHOADS, P. S. CLINICAL ANALYSIS OF 550 CASES OF BACTERIAL MENINGITIS. DIAGNOSTIC FEATURES AND VARIOUS METHODS OF TREATMENT. AM. PRACT. 1: 305-314, (Feb.), 1947.
In a study of 550 consecutive cases of bacterial meningitis admitted to Cook County Contagious Hospital a discussion was presented of the incidence of the various types of meningitis and the ways in which the etiology of purulent meningitis was correctly diagnosed. A chart was given, containing the methods of treatment recommended for each type of meningitis and also

for patients admitted in shock.
ETIOLOGIC AGENTS:
Meningococcus
Pneumococcus
Hemophilus influenzae
Tubercle bacillus
Streptococcus
Streptococcus and meningococcus
Bacillus coli
Staphylococcus
SEQUELAE:
Death.
RESEARCH CENTER:
Cook County Contagious Hospital.
REFERENCES:
13

97. ROSS, A. T. MENINGOCOCCIC MENINGITIS. INCIDENCE OF RESIDUA FOLLOWING SERUM, SULFONAMIDE, AND SULFONAMIDE-PENICILLIN THERAPY. A.M.A. ARCH. NEUROL. AND PSYCHIAT. 67: 89-102, (Jan.), 1952.
A discussion was presented of 51 patients who recovered from meningitis 1-1/2 to 20 years previous to the study. Treatment and results of the physical, neurologic, electroencephalographic, and psychomentric tests were discussed.
ETIOLOGIC AGENTS:
Meningococcus
SEQUELAE:
Hemiparesis, momoparesis, adhesive spinal arachnoiditis, unilateral blindness, deafness, brain damage, deaf-mutism, primary optic atrophy, electroencephalographic abnormalities.
RESEARCH CENTER:
Department of Neuropsychiatry, Indiana University Medical Center, Indianapolis General Hospital.
REFERENCES:
30

98. ROSS, S. AND BURKE, F. G. PNEUMOCOCCUS MENINGITIS IN INFANTS AND CHILDREN. A REPORT ON THE USE OF COMBINED SULFONAMIDE AND PENICILLIN THERAPY. J. PEDIAT. 29: 737-757, (Dec.), 1946.
In a study of 19 patients ranging in age from 6 weeks to 12 years who had suffered from pneumococcal meningitis, the treatment and complications were discussed.
ETIOLOGIC AGENTS:
Pneumococcus
SEQUELAE:
Death, deafness, spasticity, blindness, arrested hydrocephalus.
RESEARCH CENTER:
Children's Hospital, Washington, D. C.
REFERENCES:
18

99. RUEGSETTER, J. M. PNEUMOCOCCAL MENINGITIS. A REVIEW. U. S. NAV. M. BULL. 49: 1159-1168, (Nov.-Dec.), 1949.
In a review of 2400 cases of pneumococcal meningitis, the diagnosis and treatment were discussed. Factors which influenced the outcome of the illness were described.
ETIOLOGIC AGENTS:
Pneumococcus
SEQUELAE:
Death.

RESEARCH CENTER:
Not listed.
REFERENCES:
49

100. SCHAFFNER, F. (EDITOR) FEVER, ANEMIA, LEUKOCYTOSIS, BLINDNESS AND HEMIPARESIS, CLINICO-PATHOLOGICAL CONFERENCE. J. MOUNT SINAI HOSP. N. Y. 30: 64-75, (Jan.-Feb.), 1963.

A case was reported of a 69 year old man who died from an illness in which meningitis was secondary to suppurative sinusitis with septic optic neuritis present. The diagnosis made after death was caseous lymphoreticular tuberculosis with terminal miliary spread and leukemoid reaction.

ETIOLOGIC AGENTS:
Staphylococcus aureus
Bacillus pyocyaneus
Tubercle bacillus

SEQUELAE:
Death.

RESEARCH CENTER
Department of Pathology, The Mount Sinai Hospital, New York, N. Y.

REFERENCES:
1

101. SCHIAVONE, D. J. AND ROBBO, S. D. ANAEMIA ASSOCIATED WITH HAEMOPHILUS INFLUENZAE MENINGITIS. LANCET 2: 696-698, (Oct. 3), 1953.

In a study of 196 cases anaemia was found most often in the severer forms of meningitis. Neither age nor blood-group of the patient had any effect on the frequency of the occurrence of anaemia.

ETIOLOGIC AGENTS:
Haemophilus influenzae
Meningococcus

SEQUELAE:
Death.

RESEARCH CENTER:
University of Melbourne.

REFERENCES:
8

102. SCHOENBACH, E. G., SPENCER, H. C. AND MONNIER, J. TREATMENT OF HEMOPHILUS INFLUENZAE MENINGITIS WITH AUREOMYCIN AND CHLORAMPHENICOL. EXPERIENCE IN 30 CONSECUTIVE CASES. AM. J. MED. 12: 263-276, (Mar.), 1952.

In a comparison of patients treated with aureomycin and patients treated with chloramphenicol, those treated with the latter showed a lower fatality rate and a lower percentage of residua. The difference in the ages of the two groups limited the prediction of the most effective treatment.

ETIOLOGIC AGENTS:
Hemophilus influenzae

SEQUELAE:
Death, subdural effusions, retardation, hemiparesis, hearing loss, residual neurologic disturbances.

RESEARCH CENTER:
The Department of Preventive Medicine and Pediatrics, The Johns Hopkins University School of Medicine, The Harriet Lane Home, The Johns Hopkins Hospital, Baltimore, Maryland.

REFERENCES:
15

103. SHAW, E. B. AND BRUYN, H. B. STREPTOMYCIN IN THERAPY OF HEMOPHILUS INFLUENZAE MENINGITIS. J. PEDIAT. 56: 253-258, (Feb.), 1960.

A study of 132 patients treated between January 1949 and 1959 discussed the use of streptomycin and sulfadiazine in the treatment of Hemophilus influenzae meningitis. The effectiveness of chloramphenicol and tetracycline were also considered. The relationship of subdural effusion deaths to age of onset and length of illness before admission to a hospital was given.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Pneumococcus
Meningococcus

SEQUELAE:
Death, subdural effusion, mental retardation, impaired hearing and vision, herpes simplex eruptions.

RESEARCH CENTER:
The Department of Pediatrics, University of California School of Medicine, The San Francisco General Hospital, and The Children's Hospital, San Francisco.

REFERENCES:
11

104. SINGER, R. C. SULFONAMIDE-RESISTANT MENINGOCOCCAL DISEASE. MED. CLIN. N. AMER. 51: 719-727, (May), 1967.

A discussion was presented regarding the recent rise in the occurrence of meningococcal meningitis. This differed from rises in years past in that the main type occurring today was sulfonamide-resistant Type B. The mortality, prophylaxis, and treatment were discussed.

ETIOLOGIC AGENTS:
Meningococcus

SEQUELAE:
Death.

RESEARCH CENTER:
Preventive Medicine Division, Office of the Surgeon General, U.S. Army, Washington, D. C.

REFERENCES:
35

105. SMITH, E. S. PURULENT MENINGITIS IN INFANTS AND CHILDREN. REVIEW OF 409 CASES. J. PEDIAT. 45: 425-426, (Oct.), 1954.

The 409 patients admitted for treatment of purulent meningitis between 1944 and 1953 were studied in regards to the following factors: the age incidence of meningitis, the incidence of the various bacterial agents, the mortality, and the complications resulting from the illness.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Neisseria meningitidis
Mycobacterium tuberculosis
Diplococcus pneumoniae
Escherichia coli
"Others"

SEQUELAE:
Death, retardation, convulsions, hydrocephalus, blindness, deafness, chronic meningitis, quadriplegia, aphasia, behavior problems, precocious puberty, poor vision,

spasticity, hemiparesis.
RESEARCH CENTER:
The Department of Pathology, Children's Hospital, Los Angeles and the School of Medicine, University of Southern California.
REFERENCES:
20

106. SMITH, J. F. AND LANDING, B. H. MECHANISMS OF BRAIN DAMAGE IN HEMOPHILUS INFLUENZAE MENINGITIS. J. NEUROPATH. EXP. NEUROL. 19: 248-265, (Apr.), 1960.
A detailed analysis was presented of 34 fatal cases of H. influenzae meningitis which occurred between 1932 and 1958. The purpose of the study was to determine how this agent caused permanent brain damage. There were four groups by age: under six months, six months to one year, one to two years, and over two years. Case studies and post mortem findings were given for each group.
ETIOLOGIC AGENTS:
Hemophilus influenzae
SEQUELAE:
Death.
RESEARCH CENTER:
Departments of Pathology, Neurosurgery, and Pediatrics of The Cincinnati General Hospital, The Cincinnati Children's Hospital, and The University of Cincinnati College of Medicine.
REFERENCES:
12

107. SMITH, M. H. D. ACUTE BACTERIAL MENINGITIS. PEDIATRICS 17: 248-277, (Feb.), 1956.
In this review article, all aspects of acute bacterial meningitis of children were discussed, such as etiology, age, seasonal incidence, clinical manifestation, diagnosis, treatment, prognosis, and complications encountered during meningitis. Correct diagnosis and early treatment were stressed.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Neisseria meningitidis
Diplococcus pneumoniae
Pseudomonas aeruginosa
Escherichia coli
Unknown
SEQUELAE:
Sixth, seventh, and eighth nerve paralysis, subdural effusion, hydrocephalus.
RESEARCH CENTER:
Tulane University School of Medicine and Charity Hospital, New Orleans, Louisiana.
REFERENCES:
90

108. SMITH, M. H. D. SUBDURAL LESIONS IN CHILDHOOD, WITH SPECIAL REFERENCE TO INFECTIOUS PROCESSES. ADVANCES PEDIAT. 8: 165-189, 1956.
A description of all types of subdural lesions in childhood was presented. The age of the patients, etiology of antecedent meningitis, indications for subdural tap, characteristics of subdural fluid, and treatment were discussed.
ETIOLOGIC AGENTS:
Hemophilus influenzae

Diplococcus pneumoniae
Neisseria meningitidis
Tubercle bacillus

SEQUELAE:
Death, subdural effusion, developmental retardation, blindness, dysphasia, right hemiparesis, convulsions, coma.

RESEARCH CENTER:
Tulane University School of Medicine and The Charity Hospital, New Orleans, Louisiana.

REFERENCES:
59

109. SMITH, M. H. D., DORMONT, R. E., AND PRATHER, G. W. SUBDURAL EFFUSIONS COMPLICATING BACTERIAL MENINGITIS. PEDIATRICS 7: 34-43, (Jan.), 1951.

A study was presented of 43 patients under two years of age who were treated for bacterial meningitis during an 11 month period. Indications and techniques of subdural taps were discussed and the general clinical features were presented.

ETIOLOGIC AGENTS:
Hemophilus influenzae
Diplococcus pneumoniae
Pseudomonas aeruginosa
Neisseria meningitidis
Salmonella
Paracolon bacillus
"Others"

SEQUELAE:
Subdural effusions.

RESEARCH CENTER:
Department of Pediatrics, Tulane University School of Medicine, Louisiana State University School of Medicine and The Charity Hospital of Louisiana, New Orleans, Louisiana.

REFERENCES:
23

110. SNYDER, S. N. AND BRUNJES, S. HEMOPHILUS INFLUENZAE MENINGITIS IN ADULTS. REVIEW OF THE LITERATURE AND REPORT OF 18 CASES. AMER. J. MED. SCI. 250: 658-667, (Dec.), 1965.

The occurrence of H. influenzae in adults was discussed. A majority of these patients had a predisposing factor.

ETIOLOGIC AGENTS:
Hemophilus influenzae

SEQUELAE:
Death, slight ataxia and tinnitus.

RESEARCH CENTER:
The Communicable Disease Service of The Los Angeles County Hospital, Los Angeles, California.

REFERENCES:
56

111. SPRINK, W. W. AND SU, C. K. PERSISTENT MENACE OF PNEUMOCOCCAL MENINGITIS. J.A.M.A. 173: 1545-1548, (Aug. 6), 1960.

A retrospective study was presented in which 55 patients were treated during a 14-1/2 year period for pneumococcal meningitis. There were five cases of recurrent meningitis. The suggested mode of treatment was penicillin and sulfadiazine administered simultaneously. The most common source on infections was unknown in half of the cases.

ETIOLOGIC AGENTS:
Pneumococcus
SEQUELAE:
Death, hydrocephalus, visual and auditory deterioration, brain abscess.
RESEARCH CENTER:
The Department of Medicine, University of Minnesota Medical School.
REFERENCES:
7

112. SPITZ, E., POLLAK, A., AND ANGRIST, A. SUBDURAL SUPPURATION ORIGINATING IN PURULENT LEPTOMENINGITIS. ARCH. NEUROL. PSYCHIAT. 53: 144-149, (Feb.), 1945.
In a discussion of subdural suppuration as a complication of purulent leptomeningitis, alternate ways in which infection spread from the subarachnoid to the subdural space were discussed. There was evidence to suggest that suppuration was the cause of postmeningetic epilepsy.
ETIOLOGIC AGENTS:
Pneumococcus
Hemophilus influenzae
Streptococcus
Staphylococcus
Bacillus pyocyaneus
SEQUELAE:
Death, hydrocephalus, epilepsy.
RESEARCH CENTER:
Department of Pathology, Queens General Hospital, New York.
REFERENCES:
4

113. STEVENS, H. AND WILLIAMS, J. M. SUBDURAL EFFUSIONS IN INFANCY. MED. ANN. D. C. 22: 169-174, (Apr.), 1953.
This article discussed the increasing numbers of subdural effusions and neurologic sequelae among survivors of bacterial meningitis today. The symptoms for subdural effusions and the cases in which membranes must be removed were included.
ETIOLOGIC AGENTS:
Hemophilus influenzae
Diplococcus pneumoniae
Neisseria meningococcus
Hemophilus influenzae and Diplococcus pneumoniae
Undetermined
SEQUELAE:
Mental defectiveness, subdural effusions.
RESEARCH CENTER:
The Neurological and Neurosurgical Services, Children's Hospital, Washington, D. C.
REFERENCES:
24

114. STIEHM, E. R. AND DAMROSCH, D. S. FACTORS IN THE PROGNOSIS OF MENINGOCOCCAL INFECTION. REVIEW OF 63 CASES WITH EMPHASIS ON RECOGNITION AND MANAGEMENT OF THE SEVERELY ILL PATIENT. J. PEDIAT. 68: 457-467, (Mar.), 1966.
A study of 63 cases admitted between 1947 and 1962 discussed therapy and clinical and laboratory findings. Some features which generally indicated a poor prognosis were listed.
ETICLOGIC AGENTS:
Meningococcus

SEQUELAE:
Death, deafness, severe skin slough, seizures, psychic disturbances, memory lapses.
RESEARCH CENTER:
Department of Pediatrics, University of California Medical Center, San Francisco, California and The Babies Hospital, Columbia-Presbyterian Medical Center, New York.
REFERENCES:
54

115. STUDDERT, T. C. STAPHYLOCOCCAL SPINAL MENINGITIS. BRIT. M. J. 1: 1457-1459, (June 21), 1958.
A review was presented of seven patients admitted to the hospital between 1949 and 1956, ranging in age from 18 months to 47 years, with staphylococcal meningitis. Clinical findings and therapy were presented.
ETIOLOGIC AGENTS:
Staphylococcus
SEQUELAE:
Death.
RESEARCH CENTER:
Cumberland Infirmary, Carlisle.
REFERENCES:
19

116. SWARTZ, M. N. AND DODGE, P. R. BACTERIAL MENINGITIS--A REVIEW OF SELECTED ASPECTS. I. GENERAL CLINICAL FEATURES. SPECIAL PROBLEMS AND UNUSUAL MENINGEAL REACTIONS MIMICKING BACTERIAL MENINGITIS. NEW ENG. J. MED. 272: 725-731 contd., (Apr. 8), 1965.
A review of 207 patients treated at Massachusetts General Hospital between the years 1956 and 1962 was presented. The bacterial etiology, clinical features, frequency of various pathogens, and a review of neonatal meningitis were included.
ETIOLOGIC AGENTS:
Diplococcus pneumoniae
Hemophilus influenzae
Neisseria meningitidis
Streptococcus
Escherichia coli
Staphylococcus aureus
Pseudomonas aeruginosa
Pasturella multocida
Proteus
Listeria monocytogenes
Unknown
SEQUELAE:
Death.
RESEARCH CENTER:
The Department of Medicine and Neurology, Harvard Medical School, and the Medical (Infectious Disease Unit) Neurological and Children's Services and the Joseph P. Kennedy, Jr. Laboratories of the Massachusetts General Hospital.
REFERENCES:
47

117. SWARTZ, M. N. AND DODGE, P. R. BACTERIAL MENINGITIS--A REVIEW OF SELECTED ASPECTS. I. GENERAL CLINICAL FEATURES, SPECIAL PROBLEMS AND UNUSUAL MENINGEAL REACTIONS MIMICKING BACTERIAL MENINGITIS. NEW ENG. J. MED. 272: 779-787 contd., (Apr. 15), 1965.
A study of 207 patients treated between 1956 and 1962

discussed predisposing factors, ancillary cultures, cerebrospinal fluid findings, and antibacterial treatment.

ETIOLOGIC AGENTS:

Diplococcus pneumoniae
Hemophilus influenzae
Neisseria meningitidis
Streptococcus
Escherichia coli
Staphylococcus aureus
Pseudomonas aeruginosa
Clostridium perfringens
Proteus
Listeria monocytogenes
Unknown

SEQUELAE:

Death.

RESEARCH CENTER:

The Department of Medicine and Neurology, Harvard Medical School, and the Medical (Infectious Disease Unit), Neurological and Children's Services and the Joseph P. Kennedy, Jr., Laboratories of the Massachusetts General Hospital.

REFERENCES:

32

118. SWARTZ, M. N. AND DODGE, P. R. BACTERIAL MENINGITIS--A REVIEW OF SELECTED ASPECTS. I. GENERAL CLINICAL FEATURES, SPECIAL PROBLEMS AND UNUSUAL MENINGEAL REACTIONS MIMICKING BACTERIAL MENINGITIS. NEW ENG. J. MED. 272: 842-848 contd., (Apr. 22), 1965.

A study of 207 patients treated between 1956 and 1962 discussed the organisms and special features of recurrent meningitis.

ETIOLOGIC AGENTS:

Diplococcus pneumoniae
Hemophilus influenzae
Neisseria meningitidis
Streptococcus
Escherichia coli
Staphylococcus aureus
Pseudomonas aeruginosa
Pasturella multocida
Clostridium perfringens
Proteus
Listeria monocytogenes
Unknown

SEQUELAE:

Death.

RESEARCH CENTER:

The Department of Medicine and Neurology, Harvard Medical School, and the Medical (Infectious Disease Unit), Neurological and Children's Services and the Joseph P. Kennedy, Jr., Laboratories of the Massachusetts General Hospital.

REFERENCES:

32

119. SWARTZ, M. N. AND DODGE, P. R. BACTERIAL MENINGITIS--A REVIEW OF SELECTED ASPECTS. I. GENERAL CLINICAL FEATURES, SPECIAL PROBLEMS AND UNUSUAL MENINGEAL REACTIONS MIMICKING BACTERIAL MENINGITIS. NEW ENG. J. MED. 272: 898-902 contd., (Apr. 29), 1965.

A study of 207 patients treated between 1956 and 1962 discussed Behcet's syndrome, chemical and neoplastic meningitis

complicated by epidermoid cysts.
ETIOLOGIC AGENTS:
Diplococcus pneumoniae
Hemophilus influenzae
Neisseria meningitidis
Streptococcus
Escherichia coli
Staphylococcus aureus
Psuedomonas aeruginosa
Pasturella multocide
Clostridium perfringens
Proteus
Listeria monocytogenes
Unknown
SEQUELAE:
Death.
RESEARCH CENTER:
The Department of Medicine and Neurology, Harvard Medical School, and the Medical (Infectious Disease Unit), Neurological and Children's Services and the Joseph P. Kennedy, Jr., Laboratories of the Massachusetts General Hospital.
REFERENCES:
30

120. TENG, Y. C., LIU, J. H. AND HSU, Y. H. MENINGITIS AND DEAFNESS. REPORT OF 337 CASES OF DEAFNESS DUE TO CEREBROSPINAL MENINGITIS. CHIN. MED. J. 81: 127-130, (Feb.), 1962.
A review of 337 cases of meningitis which resulted in nerve deafness was presented. The deafness was bilateral in 95% of the cases, unilateral in 5%. Studies revealed that neurolabyrinthitis was probably the chief underlying pathologic factor. Other complications of meningitis were discussed.
ETIOLOGIC AGENTS:
Not listed.
SEQUELAE:
Deafness, tinnitus, disturbance of equilibrium, optic-nerve atrophy, vertigo, strabismus, facial paralysis, disturbance of taste, headache.
RESEARCH CENTER:
Peking Research Institute of Ear, Nose and Throat, Peking.
REFERENCES:
3

121. TOBIN, J. L. COMPLICATIONS OF MENINGOCOCCUS INFECTION IN A SERIES OF 63 CONSECUTIVE SPORADIC CASES. AM. J. M. SC. 231: 241-248, (Mar. 1), 1956
A retrospective study was presented of 63 Air Force recruits who suffered from meningococcal infections. Although treatment consisted of sulfadiazine and penicillin, half of the cases suffered one or more complications.
ETIOLOGIC AGENTS:
Meningococcus
SEQUELAE:
Death, deafness, facial weakness, eye muscle weakness, skin complications.
RESEARCH CENTER:
The Medical Service, 3650th USAF Hospital, Sampson Air Force Base, New York.
REFERENCES:
19

122. TODD, R. M. AND NEVILLE, J. G. THE SEQUELAE OF TUBERCULOUS MENINGITIS. ARCH. DIS. CHILD. 39: 213-225, (Jun.), 1964.

A retrospective study designed to assess the physical, social, emotional and intellectual status of children who have survived tuberculous meningitis was presented. This follow-up study was made on the 65 patients between three and one-half and fourteen years after the initial illness. Age at onset of the illness was found to be related to the general prognosis, while the home situation of the child was important in determining the subsequent improvement.

ETIOLOGIC AGENTS:

Tubercle bacillus

SEQUELAE:

Epileptic attacks, hemiplegia, generalized spasticity, weakness of lower limb, incoordination of upper limb, exaggerated reflexes following hemiplegia, conversion from right to left-handedness, deafness, strabismus, shortening of lower limb, gross deformity of lower limb, kyphosis, frontal headaches, migraine, asthma, delayed onset of puberty, mental defectiveness, disinhibition, emotional lability, fatiguability, rigid and maladaptive behavior, mental retardation.

RESEARCH CENTER:

The Department of Child Health, Liverpool University and Alder Hey Children's Hospital, Liverpool.

REFERENCES:

21

123. TOWNSEND, F. M., HERSEY, D. F. AND WILSON, F. W. MIMA POLYMORPHA AS A CAUSATIVE AGENT IN WATERHOUSE-FRIDERICHSEN SYNDROME. U. S. ARMED FORCES M. J. 5: 673-679, (May), 1954.

A study was presented of two airmen who suffered severe systemic infection due to M. polymorpha. Sulfadiazine and penicillin were used as treatment.

ETIOLOGIC AGENTS:

Mima polymorpha

SEQUELAE:

Death.

RESEARCH CENTER:

U. S. Air Force Hospital, Lackland Air Force Base, San Antonio, Texas.

REFERENCES:

11

124. WAGNER, M. G. SEQUELAE OF BACTERIAL MENINGITIS IN INFANTS. CALIF. MED. 101: 348-351, (Nov.), 1964.

In a prospective study of ten children under two years of age who were treated for purulent meningitis, the value of developmental testing was discussed and the possible relationship between subdural taps and intelligence quotient was considered.

ETIOLOGIC AGENTS:

Hemophilus influenzae
Streptococcus
Pneumococcus
Unidentified

SEQUELAE:

Behavior problems, abnormal nonfocal electroencephalogram, slow development, seizures, retardation, neurological deficit.

RESEARCH CENTER:

The School of Medicine (Pediatrics) and the School of Public Health, University of California Center for Health

Sciences, Los Angeles.
REFERENCES:
17

125. WELLMAN, W. E. AND SENFT, R. A. BACTERIAL MENINGITIS. III. INFECTIONS CAUSED BY STAPHYLOCOCCUS AUREUS. MAYO CLIN. PROC. 39: 263-269, (Apr.), 1964.
In a study of 33 patients with meningitis due to Staphylococcus aureus the illness was usually a complication of serious disease of the central nervous system. The drugs used in the treatment were also discussed.
ETIOLOGIC AGENTS:
Staphylococcus aureus
SEQUELAE:
Death, continued fever, brain damage.
RESEARCH CENTER:
Mayo Clinic.
REFERENCES:
11

126. WELSHIMER, H. J. AND WINGLEWISH, N. G. LISTERIOSIS-SUMMARY OF SEVEN CASES OF LISTERIA MENINGITIS. J.A.M.A. 171: 1319-1323, (Nov.), 1959.
A study of seven cases of listeriosis seen in a two and one-fourth year period discussed treatment and symptoms for the illness.
ETIOLOGIC AGENTS:
Listeria monocytogenes
SEQUELAE:
Death.
RESEARCH CENTER:
Department of Microbiology, Medical College of Virginia.
REFERENCES:
15

127. WETHERBEE, D. G. AND TURNER, J. W. PITUITARY INSUFFICIENCY FOLLOWING MENINGITIS. REPORT OF A CASE WITH ROENTGENOGRAPHIC SIGNS SIMULATING OSTEOPOROSIS CIRCUMSCRIPTA. AMER. J. ROENTGEN. 90: 1167-1170, (Dec.), 1963.
In a case study of pituitary insufficiency following meningitis, changes which were similar to osteoporosis circumscripta were described. Death was caused by coronary occlusion. Treatment of the case was described.
ETIOLOGIC AGENTS:
Unknown.
SEQUELAE:
Death.
RESEARCH CENTER:
Department of Internal Medicine and Radiology, Wesson Memorial Hospital, Springfield, Massachusetts.
REFERENCES:
4

128. WILLIAMS, J. M. AND STEVENS, H. POSTMENINGITIC SUBDURAL EFFUSIONS. J. INT. COLL. SURG. 27: 590-594, (May), 1957.
A study was presented which analyzed the cause, the appearance, and the effect of subdural effusions.
ETIOLOGIC AGENTS:
Diplococcus pneumoniae
Meningococcus
Hemophilus influenzae

SEQUELAE:
Subdural effusion.
RESEARCH CENTER:
Department of Neurology and Neurosurgery, Children's Hospital, Washington, D. C.
REFERENCES:
30

129. WILLIAMS, M. AND SMITH, H. V. MENTAL DISTURBANCES IN TUBERCULOUS MENINGITIS. J. NEUROL., NEUROSURG., AND PSYCH. 17: 173-182, (Aug.), 1954.
The mental disturbances of this study were classified into three stages: the confusional stage, the amnesic stage, and the post-recovery stage. Disorder of memory was the most predominant and persistent. The pattern of recovery and the possible relation between the mental disturbances and the pathological lesions were discussed.
ETIOLOGIC AGENTS:
Mycobacterium tuberculosis
SEQUELAE:
Mental disturbances.
RESEARCH CENTER:
The Nuffield Department of Surgery, Radcliffe Infirmary, Oxford.
REFERENCES:
35

130. WILSON, F. M. AND LERNER, A. M. ETIOLOGY AND MORTALITY OF PURULENT MENINGITIS AT THE DETROIT RECEIVING HOSPITAL. NEW ENG. J. MED. 271: 1235-1238, (Dec. 10), 1964.
A comparison of the occurrence of purulent meningitis in 1942-43 and 1962-63 was presented. The study consisted of all patients 14 years or older. The contributory factors in mortality and the treatment were discussed.
ETIOLOGIC AGENTS:
Pneumococcus
Meningococcus
Staphylococcus aureus
Escherichia coli
SEQUELAE:
Death.
RESEARCH CENTER:
Departments of Medicine and Microbiology, Wayne State University School of Medicine, and the Section of Infectious Diseases, Detroit Receiving Hospital.
REFERENCES:
16

131. WOLFF, O. H. THE EFFECTS OF MENINGOCOCCAL MENINGITIS ON THE INTELLIGENCE AND THE HEARING. ARCH. DIS. CHILD. 27: 302, (Jun.), 1952.
This study of 138 patients compared the effects of meningococcal meningitis in infants under one year of age to those over one year of age. Hearing and intelligence defects were most pronounced in those who suffered this illness at less than one year of age.
ETIOLOGIC AGENTS:
Meningococcus
SEQUELAE:
Intelligence defects, hearing defects.
RESEARCH CENTER:
Birmingham Children's Hospital.

REFERENCES:
0

132. WOOD, B. S. COMPLICATIONS OF PYOGENIC MENINGITIS. DEVELOP. MED. CHILD. NEUROL. 6: 63-65, (Feb.), 1964.
A study of pyogenic meningitis discussed subdural taps, recurrent meningitis, brain damage, and therapy.
ETIOLOGIC AGENTS:
Pneumococcus
Meningococcus
SEQUELAE:
Hydrocephalus, fits, behavior disorders, special sense deficits, death, mental defect.
RESEARCH CENTER:
None listed.
REFERENCES:
11

133. YU, J. NEONATAL MENINGITIS. PATHOGENESIS, DIAGNOSIS, MANAGEMENT, SEQUELAE. CLIN. PEDIAT. (Phila.) 4: 387-390, (Jul.), 1965.
A complete review of meningitis was presented with emphasis on the following: the difficulty in diagnosis, unique susceptibilities of the newborn infant, characteristic reactions to the invading pathogens, diagnostic aids, and methods of treatment. The necessity of performing lumbar punctures for a correct diagnosis was stressed.
ETIOLOGIC AGENTS:
Escherichia coli
Streptococcus
SEQUELAE:
Death, hydrocephalus, recurrent convulsions, deafness, developmental and mental retardation, behavior problems.
RESEARCH CENTER:
Institute of Child Health, Royal Alexandra Hospital for Children, Sydney, N.S.W., Australia.
REFERENCES:
9

134. YU, J. S. AND GRAUAUG, A. PURULENT MENINGITIS IN THE NEONATAL PERIOD. ARCH. DIS. CHILD. 38: 391-396, (Aug.), 1963.
A review of 47 infants who were treated for meningitis between December 1951 and July 1953 was presented. The therapy and factors influencing the mortality and complication rate were discussed.
ETIOLOGIC AGENTS:
Escherichia coli
Paracolon bacilli
Pseudomonas
Proteus
Streptococcus faecalis
Staphylococcus aureus
Streptococcus haemolyticus
Pneumococcus
Hemophilus influenzae
Unidentified
SEQUELAE:
Death, hydrocephaly, subdural effusions.
RESEARCH CENTER:
Institute of Child Health, Royal Alexandra Hospital for Children, Sydney, N.S.W., Australia.
REFERENCES:
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APPENDIX B

DATA COLLECTION FORMS

December 19, 1968

Dear Parent:

We are working with your schools in a study of the health of school children. We need your help in providing information which only you can give us. Your cooperation is voluntary, and your answers will be completely confidential. Please fill in the blanks below and return this sheet to us in the self-addressed, stamped envelope.

If you have any questions, please do not hesitate to telephone the research office at 297-5045.

Student's Name _____

Home Address _____

Phone _____

School Student Attends _____

Household Head's Name _____

Household Head's Occupation _____

Household Head's Education _____

Thank you for your help in this important matter.

Sincerely,

John E. Pate, Ed.D.
Project Director
Wills Center School
Vanderbilt University
Medical Center

JEP:jr

VANDERBILT UNIVERSITY MEDICAL CENTER

Consent for Clinical Research Study

O.E.G. #0-8-070644-1753

PROJECT DIRECTOR:_____ DATE_____

This is my written consent for my child,_____ _____, to participate in a program of investigation under the supervision of Dr._____. I am _____ years of age.

I have been informed of the nature, approximate duration, and purpose of the program, and I understand that the studies will involve the following special procedures: School evaluation, psychological evaluation, and physical examination.

I have been informed of all inconveniences and risks reasonably to be expected from the procedures, and possible beneficial effects thereof. All my inquiries have been answered, and I chose freely and voluntarily to participate and understand that I may withdraw at any time.

_____ _____
Volunteer's Signature (Parent or Guardian) Date

I have defined and fully explained the studies involved to the above volunteer.

_____ _____
Investigator's Signature Date

PM Study
Dept. of Psychiatry
School of Medicine
Vanderbilt University

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Code Sheet for Form 00

PERCEPTUALLY HANDICAPPED CHILDREN STUDY

PART I

ID: Study Group or Cities (1):_____.
1. Experimental PM., 2. Control PM., 3. Atlanta,
4. Memphis, 5. Nashville, 6. New Orleans.
Teacher (2-3):_____. Name (4-5):_____.
1.Male, 2.Female.
Sex (11):_____. 1. Male, 2. Female.
Age (12-13):_____., Age when identified (14):_____.
1. 6-, 2. 7-, 3. 8-, 4. 9-, 5. 10-, 6. 11-,
7. 12-, 8. 13 & over.
Who initiated referral (19-20):_____.
1.Tchr., 2.Parent, 3.Guid., 4.Princ., 5.Other.
Examined by (21-22):_____.
1.Psy., 2.Pediat., 3.Guid., 4.Neuro., 5.Psychiat.
Principal area of academic difficulty (23-24):_____.
1.Math., 2.Reading, 3.Spelling, 4.Soc.St., 5.Scien.
School days absent (26):_____.
1. 1-5, 2. 6-10, 3. 11-15, 4. 16-20, 5. 21 & over.
Grade failed (28):_____.
1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
Intelligence test administered (29-30):_____.
1.BINET, 2.WISC., 3.PPVT., 4.None, 5.Other.
IQ Score (32):_____.
1. 60-, 2. 70-, 3. 80-, 4. 90-, 5. 100-, 6. 110-,
7. 120-, 8. 130 & over.
Physical fitness test administered (33-34):_____.
1.AAHPER., 2.PMS., 3.Oseretsky, 4.Other, 5.None.
Physical fitness % ile rank (36):_____.
1. 19 or less, 2. 20-, 3. 40-, 4. 60-, 5. 80-.
Religious affiliation (38):_____.
1. PROT., 2. CATH., 3. JEW., 4. Other, 5. None.
Family Constellation (40):_____.
1. Living with both natural parents.
2. Living with one natural parent.
3. Living with adoptive parents.
4. Living with foster parents.
5. Other.
No. of children in family (41):_____.
1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
Rank in sibling order (43):_____.
1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
Occupation of father (46):_____ of mother (47):_____.
1. Unskilled, 2. Semi-skilled, 3. Skilled,
4. Business-managerial, 5. Professional,
6. Homemaker, 7. None, 8. Other.

Education of father (51):_____ of mother (52):_____.
1. Less than 8th grade, 2. 8-12th grade, 3. high school grad., 4. more than high school, 5. college degree, 6. Other.

Socio-economic level of family (54):_____.
1.up to 3,000, 2.3,000-, 3.3,500-, 4. 6,000-, 5.10,000+.

PART II

ID: Study Group or Cities (1)_____.
1. Experimental PM., 2. Control PM., 3. Atlanta, 4. Memphis, 5. Nashville, 6. New Orleans.
Teacher (2-3):_____. Name(4-5):_____.

	Yes	No	DK	
(11)	__	__	__	Does teacher have regular contact with the parents
(12)	__	__	__	In the teacher's opinion this family has too high expectations for the child
(13)	__	__	__	In teacher's opinion this family's expectations are commensurate with the child's ability
(14)	__	__	__	In teacher's opinion the parents exert too much pressure for academic achievement
(15)	__	__	__	In teacher's opinion the parents tend to over-organize the child's time
(16)	__	__	__	In teacher's opinion the parents tend to over-indulge the child
(17)	__	__	__	In teacher's opinion the parents have a wholesome attitude toward the child
(18)	__	__	__	Poor general coordination
(19)	__	__	__	Unsteady gait (when walking or running)
(20)	__	__	__	Is behavior problem at school
(21)	__	__	__	Reads below expected grade level
(22)	__	__	__	Poor acceptance among peer group
(23)	__	__	__	Has poor handwriting
(24)	__	__	__	Has a poor self-concept
(25)	__	__	__	Is not dependable
(26)	__	__	__	Is careless with school work
(27)	__	__	__	Is destructive with school materials
(28)	__	__	__	Academic achievement is very uneven
(29)	__	__	__	Is very restless
(30)	__	__	__	Has tics or jerky movements while working
(31)	__	__	__	Manifests little or no originality
(32)	__	__	__	Is sluggish and sedentary
(33)	__	__	__	Dislikes playground activities
(34)	__	__	__	Is physically underdeveloped
(35)	__	__	__	Is a chronic worrier
(36)	__	__	__	Is shy and withdrawn
(37)	__	__	__	Dislikes competition in any form
(38)	__	__	__	Is very aggressive

(39) ___ Is physically attractive
(40) ___ Is easily angered
(41) ___ Seldom or never contributes voluntarily to work
(42) ___ Dislikes school
(43) ___ Is uneasy during unstructured activity
(44) ___ Is an under-achiever
(45) ___ Cries easily
(46) ___ Prefers younger companions
(47) ___ Has difficulty orienting to sound
(48) ___ Is a chronic absentee
(49) ___ Is frequently sleepy or lethargic
(50) ___ Has frequent sleepy spells of inattention or staring into space
(51) ___ Complains of frequent headaches
(52) ___ Has frequent skin problem(s) (rashes, etc.)
(53) ___ Is overweight
(54) ___ Has frequent problems with upset stomach or vomiting
(55) ___ Diagnosed brain damage
(56) ___ Equivocal damage
(57) ___ No diagnosed damage
(58) ___ Other
(59) ___ History of head injury
(60) ___ History of prolonged high fever
(61) ___ History of convulsions
(62) ___ History of dehydration
(63) ___ History of encephalitis

Code Sheet for Form 10

FAMILY INTERVIEW

Card I

Card Col.		
1-5	— — — — —	Subject Identification
6-7	___ ___	Family Interview form Code No.
8	___	Present at interview: 1 M 2 F 3 M&F 4 M&F & children 5 M & children 6 F & children 7 extended family members 8 others 9 don't know
9	___	Principal informant: 1 M 2 F 3 M&F 4 M&F & children 5 M & child 6 extended family members 7 others
10-11	___ ___	Mother's age: (If not given use 99)
12-13	___ ___	Father's age: (If not given use 99)
14-19	_ _ _ _ _ _	Subject's birthdate:
20	___	Sex of subject:
21	___	Race: 1 Caucasion 2 Negro 3 other
22-23	___ ___	Siblings older:
24-25	___ ___	Siblings younger:
26-27	___ ___	How many children do you feel represents an ideal number? (If don't know use 99)
28	___	Subject's natural mother? 1 yes 2 no
29	___	Living with natural father? 1 yes 2 no
30	___	Family Configuration: 1 living with both natural parents 2 living with one natural parent 3 living with adoptive parents 4 living with foster parents 5 living with other than above

Form 10

31	___	Abrupt change in family: 1 none 2 Death of one or both natural parents 3 Desertion by natural parents 4 Divorce of natural parents 5 Loss of grandparent(s) living in home 6 Loss of extended family members living in home 7 other 8 if remarkable, specify _____ 9 Combination
32-33	___ ___	Subject's age at time of abrupt family change: 1 0-1 2 1-2 3 2-3 4 3-4 5 4-5 6 5-6 7 6-7 8 over 7 9 don't know 10 not applicable
34-35	___ ___	Number of rooms in house: (not including bathrooms)
36-37	___ ___	Number of people living in house:
38	___	Crowding index: 1 0-.25 2 .25-.50 3 .50-.75 4 .75-1.00 5 1.00-1.25 6 1.25-1.50 7 1.50-1.75 8 1.75-2.00 9 over 2.00
39	___	Own or rent house: 1 own 2 rent
40	___	Number of times family moved in last three years: 1 none 2 1 3 2 4 3 5 4 6 5 7 6 8 7 9 don't know
41-42	___ ___	Two factor index of social position:
43	___	Religious Affiliation: (To interviewer: if there is any hesitancy, do not press for an answer.) 1 Protestant, liberal (e.g., Presbyterian, Lutheran, Episcopal, etc.) 2 Protestant, fundamental (e.g., Pentacostal, Church of Christ, Church of God, Assembly of God, etc.) 3 Roman Catholic 4 Jew 5 Other 6 None 9 don't know

Form 10

44	___	Church Participation: 1 never 2 rarely 3 occasionally 4 regularly 5 center of family activity 9 don't know
45	___	Own car: 1 yes 2 no
46-47	___ ___	Where do you spend vacations: 1 stay home 2 visit friends, relatives in state 3 visit friends, relatives outside state 4 visit different places of historical, educational, or scenic interest 5 never take a vacation 6 other 9 don't know 10 combination
48	___	Take newspaper: 1 yes 2 no
49	___	Take magazine: 1 yes 2 no
50	___	Belong to civic club: 1 yes 2 no
51	___	Husband belong to civic club: 1 yes 2 no 9 don't know
52	___	Mother's quality of grammar: 1 poor 2 average 3 good
53	___	Father's quality of grammar: 1 poor 2 average 3 good 4 not applicable
54	___	Condition of house: 1 poor 2 average 3 good 4 not applicable
55	___	Cleanliness & orderliness of interview room: 1 poor 2 average 3 good 4 not applicable

Form 10

56 ___ Type of neighborhood:
1 commercial & industrial
2 residential & industrial
3 mainly residential & commercial
4 mainly residential, upper class
5 mainly residential, middle class
6 mainly residential, lower class
7 slum 9 don't know

57 ___ Has subject ever had serious illness:
1 yes 2 no

58-59 ___ ___ Subject's age when he had this illness:
1 0-1 2 1-2 3 2-3 4 3-4 5 4-5
6 5-6 7 6-7 8 over 7 9 don't know
10 not applicable

60 ___ Information given by doctor about this illness:
1 thoroughly explained
2 partially explained
3 not explained at all
4 not applicable

61-62 ___ ___ Were there prolonged after effects of illness?
1 None 2 Locomotion 3 Irritability and nervousness 4 Hearing irregularities 5 Visual impairment
6 Seizures 7 Loss of memory
8 Speech problems 9 Don't know
10 Headaches 11 Irritability
12 Combination 13 Not applicable

63 ___ Is subject more like:
1 Father 2 Mother 3 About the same
4 Neither

64 ___ Is subject as happy as his/her brothers/sisters?
1 yes 2 no 3 not applicable
9 don't know

65 ___ Does subject smile as often as his/her brothers/sisters?
1 less often 2 about same 3 more often 4 not applicable
9 don't know

Form 10

66 ___ Does subject scream or make a big fuss when things don't go as he/she wishes?
1 yes 2 no 3 sometimes 9 don't know

67 ___ Is the same with his/her brothers/sisters when things don't go their way:
1 less often 2 about same 3 more often 4 not applicable

68 ___ Method of punishment used with children:
1 don't do anything usually 2 shame them 3 spank them 4 isolate them 5 deny privilege 6 verbal reasoning 7 combination 9 don't know

69 ___ Do you find what others say about bringing up children helpful?
1 worthless 2 helpful sometimes 3 helpful most of the time 4 very helpful 9 don't know

70 ___ Comparison of disagreements and arguments in your home with those of other homes:
1 more frequent 2 about same 3 less frequent 9 don't know

71 ___ In arguments among the children at home, is subject usually the aggressor:
1 Most of the time 2 Frequently 3 Occasionally 4 Seldom 5 Never 6 Same as other children 7 Same as brothers/sisters 8 not applicable 9 don't know

72 ___ Does subject request your intervention in arguments at home?
1 Most of the time 2 Frequently 3 Occasionally 4 Seldom 5 Never 6 Same as other children 7 Same as brothers/sisters 8 Not applicable 9 don't know

Form 10

73 ___ Does subject feel that others at home pick on him/her?
1 Most of the time 2 frequently
3 occasionally 4 seldom 5 never
6 same as other children 7 same as brothers/sisters 8 not applicable
9 don't know

74 ___ Do you interrupt arguments among children at home involving subject?
1 usually 2 occasionally 3 never or rarely 4 not sure what to do
5 not applicable 9 don't know

75 ___ Does your husband interrupt arguments among children at home involving subject?
1 usually 2 occasionally 3 never or rarely 4 not sure what to do
5 not applicable 9 don't know

76 ___ If previous two answers are different why do you think this is so?
1 needs protection 2 needs to learn to defend himself 3 can defend his own rights 4 not applicable
5 avoid argument 9 don't know

77 ___ Is subject as brave as his/her brothers/sisters were at his/her age?
1 less brave 2 about same 3 more brave 4 not applicable
9 don't know

Card II
8 ___ Is subject as shy as his/her brothers/sisters were at his/her age?
1 less shy 2 about same 3 more shy
4 not applicable 9 don't know

9 ___ How would you describe closeness of your family in relation to other homes?
1 closer 2 about same 3 less close
9 don't know

Form 10

10 ___ Who eats evening meal with subject on week nights?
1 Mother 2 Father 3 M & F 4 Whole family 5 Mother & children
6 Father & children 7 Whole family & extended family members 8 No pattern 9 don't know 10 Other

11 ___ How many schools has subject attended?
1 1 2 2 3 3 4 4 5 5 9 don't know

12 ___ Have the schools been public or private?
1 public 2 private 3 both

13 ___ How much education do you want subject to get?
1 go as far as possible 2 8th grade or less 3 high school 4 vocational or trade school 5 secretarial or cosmetology 6 college 7 beyond college 8 no plans 9 don't know

14 ___ Have you changed the goals for subject since he/she entered school:
1 yes 2 no 3 a little 9 don't know

15 ___ Approximately how old was subject when you changed your goals for him/her?
1 1 yr. 2 2 yr. 3 3 yr. 4 4 yr.
5 5 yr. 6 6 yr. 7 7 yr. 8 8 yr.
9 not applicable

16 ___ How far do you think subject is capable of going in school?
1 8th grade or less 2 H.S.
3 Vocational or trade 4 secretarial or cosmetology 5 college 6 post graduate 9 don't know

17 ___ Do you feel the same way about your other children?
1 yes 2 no 3 about most but not all
4 same way about boys 5 same way about girls 6 not applicable
9 don't know

Form 10

18 ___ Number of hours a day subject spends watching TV:
1 0-1 2 1-2 3 2-3 4 3-4 5 4-5
6 5-6 9 don't know

19 ___ Is this more time than his/her brothers/sisters spent watching TV at that same age?
1 less 2 about same 3 more 4 not applicable 9 don't know

20 ___ Hours a day Mother watches TV:
1 0-1 2 1-2 3 2-3 4 3-4 5 4-5
6 5-6 9 don't know

21 ___ Mother's favorite TV programs:
1 cartoons 2 cowboy & western
3 evening dramatic shows 4 daytime series 5 comedy specials 6 educational channel 7 special sports programs 8 combination 9 don't know

22-23 ___ ___ Husband's favorite TV programs:
1 cartoons 2 cowboy & western
3 evening dramatic shows 4 daytime series 5 comedy specials 6 educational channel 7 special sports programs 8 news 9 don't know
10 combination 11 anything

24 ___ Are there arguments surrounding the use of TV?
1 seldom or rarely 2 occasionally
3 frequently 4 not applicable

25 ___ Who usually makes the decisions about TV?
1 parents 2 children 3 subject
4 combination

26 ___ Is there a difference about decisions concerning children's programs?
1 yes 2 sometimes 3 no

27 ___ If above answer is yes, who usually decides about children's programs?
1 parents 2 children 3 subject
4 not applicable

Form 10

28 ___ Would you consider your child an active or inactive child when it comes to physical activity?
1 active 2 average 3 inactive
9 don't know

29 ___ How would you rate your other children when it comes to physical activity?
1 more active 2 about same 3 less active 4 not applicable
9 don't know

30 ___ How would you rate the size of your child?
1 oversized 2 average 3 undersized

31 ___ Does your child get along well with other children?
1 most of the time 2 seldom 3 about like average 4 never 9 don't know

32 ___ What type of activities does your child participate in most?
1 active (physical) 2 quiet type activities 3 all kinds 4 mainly academic tasks 5 combination
9 don't know

33 ___ Are these activities solitary or do they involve others most of the time?
1 solitary 2 other children 3 both
9 don't know

34 ___ How many times has your child had to stay overnight in a hospital?
1 single time 2 more than once
3 none 9 don't know

35 ___ Were there any noticeable changes in behavior following this hospitalization(s)?
1 yes 2 no 4 not applicable
9 don't know

36 ___ How is your child getting along in school this year?
1 excellent 2 good 3 average
4 poor 9 don't know

Form 10

37 ___ Has subject had to repeat any grades?
1 yes 2 no 3 is now in first grade

38 ___ Has any of subject's siblings had to repeat a grade?
1 yes 2 no 3 not applicable

39 ___ What does he/she seem to be having the most difficulty with?
1 reading 2 writing 3 arithmetic
4 spelling 4 behavior 6 other
7 none 8 combination 9 not applicable

40 ___ Does your child have too much or too little homework?
1 too much 2 just right 3 not enough 4 is in first grade, doesn't have any 9 don't know

41 ___ Do you ask subject to bring home his/her test papers and school work?
1 yes 2 sometimes 3 no 4 is required by teacher

42 ___ What was his/her last report card like?
1 good 2 good to average 3 average
4 average to poor 5 poor
9 don't know

43 ___ Do you punish subject for poor school work?
1 yes 2 no 3 sometimes 4 work with child to help improve

44 ___ How do you punish him/her?
1 shame him 2 spanking 3 isolation
4 deny privilege 5 verbal, reason
6 combination 7 not applicable
9 don't know

45 ___ Are the other children handled in the same way concerning their report cards?
1 yes 2 most of time 3 seldom
4 never 5 same with some, but not all of children 6 not applicable
9 don't know

Form 10

46 ___ Has any adult from this household visited his/her school this year to talk with the teacher, principal, or to attend an open house?
1 yes 2 no 9 don't know

47 ___ Who was visited?
1 teacher 2 principal 3 guidance
4 teacher & principal 5 not applicable 6 teacher, principal, & guidance 7 principal & guidance
8 teacher & guidance 9 other

48-49 ___ ___ What are some activities you engage in as a family?
1 none 2 watch TV 3 games & hobbies
4 visits 5 educational activities
6 camping 7 fishing 8 picnicing
9 don't know 10 combination
11 church

50 ___ Did you breast feed or bottle feed subject?
1 bottle 2 breast 3 started on breast then went to bottle

51 ___ How long was subject on the bottle/breast?
1 0-6 mos. 2 6-9 mos. 3 9-12 mos.
4 12-15 mos. 5 15-18 mos. 6 18-21 mos. 7 21-24 mos. 8 over 24 mos.
9 don't know

52 ___ Did you try to get subject on a feeding schedule as soon as possible?
1 yes 2 no 3 most of time
4 occasionally 9 don't know

53 ___ If yes, how early did you accomplish this?
1 0-3 mos. 2 3-6 mos. 3 6-9 mos.
4 9-12 mos. 5 12-15 mos. 6 15-18 mos. 7 18-21 mos. 8 21-24 mos.
9 don't know

54 ___ Did you stick closely to the schedule?
1 yes 2 no 3 most of time
4 occasionally 9 don't know

Form 10

55 ___ How would you handle it when subject was hungry and it wasn't time to eat?
1 didn't pay any attention to him
2 gave him a pacifier 3 gave him a toy or something to play with
4 picked him up and held him
5 entertained him somehow 6 spanked him if he didn't shut up 7 gave him something to eat to hold him over 8 fed him 9 not applicable

56 ___ Has subject ever had or does he/she now have any eating problems?
1 yes 2 no 3 not sure
4 occasionally 9 don't know

57 ___ Would you say subject is a finicky eater?
1 yes 2 no 3 most of time
4 occasionally 9 don't know

58-59 ___ ___ What do you consider important concerning a child's table manners?
1 clean clothes at table 2 must not talk unless talked to 3 must always wash hands and face 4 must not sing or whistle 5 must eat properly with utensils 6 must chew food with mouth closed 7 use good manners when asking for something or leaving table
8 doesn't really matter as long as they eat well 9 don't know
10 combination 11 must use conversational voice, not boisterous

60 ___ How long was it before subject was completely toilet trained?
1 0-6 mos. 2 6-9 mos. 3 9-12 mos.
4 12-15 mos. 5 15-18 mos.
6 18-21 mos. 7 21-24 mos.
8 over 24 mos. 9 don't know

61 ___ What were the greatest problems in getting subject to toilet train?
1 his stool 2 urination 3 establishing regularity 4 fear of toilet
5 boys(girls) are just slow to train
6 fear of potty chair 7 wasn't hard at all 8 no problems 9 don't know

Form 10

62 ___ How did you punish subject when he/she had an accident?
1 spanked 2 verbal tongue lashing 3 nothing 4 promised him certain things if he wouldn't do it again 5 deny privileges 6 isolate him for a while 7 shame him 8 combination 9 don't know

63 ___ Did you handle it differently if the accident occurred at night?
1 yes 2 no 3 most of time 4 occasionally 9 don't know

64 ___ Does subject ever wet the bed at night?
1 yes 2 sometimes 3 seldom 4 rarely 5 never 9 don't know

65 ___ If yes, how often?
1 nightly 2 4 times a week 3 3-4 times every two weeks 4 3-4 times a month 5 once a month 6 less than once a month 7 only when he's upset 8 never 9 don't know

66 ___ What, if anything, would you now do differently concerning feeding problems?
1 nothing 2 be easier than I was 3 less punishment 4 more punishment 5 seek more advice 6 offer wider variety of food 7 stick closer to schedule 9 don't know

67 ___ What, if anything, would you now do differently concerning toilet training?
1 nothing 2 be easier than I was 3 less punishment 4 more punishment 5 seek more advice 9 don't know

68 ___ What are the sleeping arrangements for subject?
1 separate room 2 room with siblings (separate beds) 3 room with parent 4 shares bed with parent 5 shares bed with sibling 6 other 7 shares bed with relative 9 don't know

Form 10

69 ___ How do you feel about subject going around the house without clothing?
1 don't allow 2 doesn't matter, he/she is a kid 3 okay, sometimes
4 doesn't happen 5 other
9 don't know

70 ___ Did you handle this differently when he/she was younger?
1 yes 2 no 3 most of time
4 occasionally 9 don't know

71 ___ What have you always done if you saw or heard that subject was playing with his/her sex organs (masturbating)?
1 spanked 2 verbal tongue lashing
3 isolation 4 deny privileges
5 disregard 6 ask him not to do it again 7 combination 8 divert attention 9 not applicable

72 ___ Did you handle this differently when subject was younger?
1 yes 2 no 3 most of time
4 occasionally 5 not applicable
9 don't know

73 ___ How do(did) you handle sex play among your children?
1 spanked 2 verbal tongue lashing
3 isolation 4 deny privileges
5 disregard 6 ask them not to do it again 7 combination 8 not applicable 9 don't know

74 ___ Has subject been more of a problem than his/her brothers or sisters?
1 yes 2 no 3 most of time
4 occasionally 5 not applicable
9 don't know

75 ___ Has this procedure proved effective or would you handle it another way if you had it to do over again?
1 procedure proved to work well
2 worked most of time 3 I'd do it differently 4 I'm still not sure what I'd do 5 not applicable
9 don't know

Form 10

76 ___ What do you feel are the most important things for your child to be neat and clean about?
1 his whole body 2 hands and face
3 face, hands and hair 4 clothes
5 food 6 everything 7 combination
9 don't know

77 ___ Do you require subject to keep his room picked up and toys put away?
1 yes, always 2 most of time
3 s om 4 certain times or days
5 never 9 don't know

Card III
8 ___ What, if anything, do you do when you find subject playing on the furniture (couch, chairs, beds, etc.)?
1 spank 2 verbal lashing 3 isolation 4 deny privilege 5 disregard
6 ask him not to do it again
7 combination 9 not applicable

9 ___ Is subject allowed to play in any room of the house at certain times?
1 yes, always 2 most of time
3 occasionally 4 never, certain rooms are off limits 9 don't know

10 ___ Do you feel this was the best approach or would you change now?
1 best approach 2 would change
3 other 9 don't know

11 ___ Has subject always been a physically active or inactive child?
1 very active 2 above average
3 below average 4 average 5 inactive 9 don't know

12 ___ Has he/she been more active or less active than his/her brothers and sisters were at the same age?
1 more active 2 about same 3 less active 4 combination 5 other
6 not applicable 9 don't know

Form 10

13 ___ Do you allow subject to climb, swing, run, and jump without many restrictions?
1 always 2 most of time 3 occasionally 4 rarely 5 other 9 don't know

14 ___ Do you like to be present when this is taking place?
1 yes 2 doesn't matter 3 sometimes 9 don't know

15 ___ Has subject had a lot of injuries and accidents while growing up.
1 yes 2 about like other children 3 about same as siblings 4 no 9 don't know

16 ___ Are you satisfied that subject was better off with the approach you used concerning his physical activities?
1 yes 2 not sure 3 no 9 don't know

17 ___ What method(s) of punishment do you use when it is needed?
1 spanking 2 shame him 3 isolation 4 deny privilege 5 verbal reasoning 6 combination 9 don't know

18 ___ What has subject been corrected most often for?
1 behavior outside house 2 behavior inside house 3 behavior at school 4 combination 9 don't know

19 ___ If you had it all to do over again, would you use the same kind of discipline?
1 yes 2 most of time 3 not sure 4 no 9 don't know

20 ___ How do you reward subject when he/she is good?
1 affection (hug or kiss, etc.) 2 material things (candy, ice cream, toy, etc.) 3 tell him verbally you are pleased 4 take him someplace he wants to go 5 combination 9 don't know

Form 10

21 ___ Does subject ask for your help often when it comes to things he could do for himself if he would?
1 yes 2 sometimes 3 seldom
4 never 9 don't know

22 ___ Do you enjoy helping subject or do you wish he would do more things for himself?
1 enjoy helping 2 don't mind sometimes 3 wish he would do these things himself 9 don't know

23 ___ Before subject entered school did you read to him/her? If yes, approximately how many hours a week did you spend reading to him/her?
1 no 2 0-1 hr. 3 1-2 hr. 4 2-3 hr.
5 3-4 hr. 6 4-5 hr. 7 5-6 hr.
8 over 6 hr. 9 don't know

24 ___ Do you feel that this has been an adequate amount of time?
1 yes 2 no 9 don't know

25 ___ Before subject entered school approximately how many hours a week did you spend with him/her playing games, telling stories, etc.?
1 none 2 0-1 hr. 3 1-2 hr. 4 2-3 hr. 5 3-4 hr. 6 4-5 hr. 7 5-6 hr. 8 over 6 hr. 9 don't know

26 ___ Do you feel this was an adequate amount of time?
1 yes 2 no 9 don't know

27-28 ___ ___ How do(would) you feel if subject brings home a poor report card?
1 awful, he should do better 2 accept it, he does best he can
3 disregard it & say very little
4 see teacher to find out what is wrong 5 threaten him 6 have talk with him to try & help 7 shame him
8 take away a privilege for awhile
9 don't know 10 combination

Form 10

29-30 ___ ___ What form of punishment, if any, do you use if he brings home a poor report card?
1 spanking 2 verbal tongue lashing 3 isolation 4 deny privilege 5 disregard 6 work with him in ways to help solve the problem 7 combination 8 don't use punishment of any kind 9 don't know 10 not applicable 11 put pressure on

31 ___ What happens when the report card is very good?
1 hug or kiss (affection) 2 verbal approval 3 buy him something (toy, food, clothes) 4 take him someplace he wants to go 5 usually don't do anything 6 combination 7 not applicable

32 ___ How does subject seem to get along with other children?
1 excellent 2 very well most of time 3 average, like other children 4 not very well 5 seldom 9 don't know

33 ___ Is he/she as friendly with other children as his/her brothers and sisters?
1 less friendly 2 about same 3 more friendly 4 not applicable 9 don't know

34 ___ Would you say subject is an aggressive or a fairly timid child?
1 aggressive 2 about same as other children 3 timid or shy 4 hard to figure out 9 don't know

35 ___ How do you usually handle it when subject gets into fights with other children?
1 spank 2 let him work it out 3 go out and help settle it 4 send other child home 5 isolate subject for awhile 6 shame him 7 combination 8 not applicable 9 don't know

Form 10

36 ___ What do you do when subject talks back to you or attempts to strike or kick you?
1 spank 2 verbal reasoning 3 isolation 4 deny privilege 5 disregard 6 shame him 7 combination 9 don't know

37 ___ Would you say you used physical punishment (spanking, switching, belt) on subject very often?
1 yes 2 most of time 3 occasionally 4 seldom 5 never 9 don't know

38 ___ Do you use restrictions (no dessert, no TV, send to room, etc.) as a means of punishment very often?
1 yes 2 most of time 3 occasionally 4 seldom 5 never 9 don't know

39 ___ How often would you say you tell subject you're going to punish him and then for some reason or other don't do it?
1 often 2 occasionally 3 seldom or never 9 don't know

40 ___ Would you say you and your husband agree on most things when it comes to raising your child?
1 yes, always 2 most of time 3 occasionally 4 seldom 5 never 6 at first yes, later no 9 don't know

41 ___ When it comes to punishment, who handles it most of the time, you or your husband?
1 mother 2 father 3 about same between mother and father 4 other family member 9 don't know

Code Sheet for Form 21

SCHOOL ADJUSTMENT - GENERAL INFORMATION

_____ (1-7) ID Number

_____ (11) Enrolled in grade
1. K 2. 1st 3. 2nd 4. 3rd 5. Spec.Ed.
6. Other

_____ (12) Attended Kindergarten
1. yes 2. no 3. other

_____ (13) Grade repeated
1. K 2. 1st 3. 2nd 4. 3rd 5. None

_____ (14) Scholastic Evaluation
1. E 2. G 3. S 4. U 5. None

_____ (15-16) Principal area of Academic Difficulty
1. Reading 2. Spelling 3. Math
4. Soc. Stud. 5. Writing 6. Reading and Math 7. Reading and Spelling
8. Reading and Soc. Stud. 9. Reading and Writing 10. Other 11. None
12. Writing and Math 13. All areas
14. Math and Soc.Stud.

_____ (17-20) IQ Score
1. IQ Score, Individual
2. IQ Score, Group
3. Not available

Code Sheet for Form 22

SCHOOL ADJUSTMENT & PSYCHOLOGICAL ASSESSMENT

Card I
Col. No.

(1-7) _____ ID Number

ITPA (Standard Score)

(8-10) _____ Auditory-Vocal Automatic Test
(11-13) _____ Visual Decoding Test
(14-16) _____ Motor Encoding Test
(17-19) _____ Auditory-Vocal Association Test
(20-22) _____ Visual-Motor Sequencing Test
(23-25) _____ Vocal Encoding Test
(26-28) _____ Auditory-Vocal Sequencing Test
(29-31) _____ Visual-Motor Association Test
(32-34) _____ Auditory Decoding Test
(35-37) _____ Total

FROSTIG

(40-42) _____ Eye-Motor coordination
(43-45) _____ Figure-ground
(46-48) _____ Form constancy
(49-51) _____ Position in space
(52-54) _____ Spatial relationships
(55-57) _____ Perceptual Quotient
(58-60) _____ Percentile Rank

Columbia Test of Mental Maturity

(62-64) _____ IQ
(65-68) _____ MA

Peabody Picture Vocabulary Test

(70-72) _____ IQ
(74-77) _____ MA

Card II
Col. No.

(1-7) _____ ID Number
(8) _____ Determine Preferred hand. 1.R, 2.L, 3.Both.

Finger Tapping

(9-10) _____ Preferred hand 10"
(11-12) _____ Other hand 10"
(13-14) _____ Preferred hand 30"
(15-16) _____ Other hand 30"
(17-19) _____ (Preferred-other) / (Preferred + other)

Grooved Peg-Board

(20-22) _____ Preferred
(23-25) _____ Other

(26) _____ Hagin Test. 1.R, 2.L, 3.Both

Hand Dynamometer

(27-28) _____ Preferred

(29-30) _____ Other

(31-33) _____ (Preferred-other) / (Preferred + other)

Bead Stringing

(34-35) _____ Two minute trial

Balance Beam

(36-39) _____ First Trial (forward)

(40-43) _____ Second trial (slanted-forward)

Paired-Associate Learning Task

(44) _____ First trial

(45) _____ Second trial

(46) _____ Third trial

(47-48) _____ Total

Rating Scale Summary

(49-50) _____ Activity

(51-52) _____ Demandingness

(53-54) _____ Distractibility

(55-56) _____ Impulsivity

(57-58) _____ Infantilism

(59-60) _____ Negativism

(61-62) _____ Fearfulness

Description of Items Recorded on Form 22, Card II

(8) Preferred Hand--had each child throw a piece of wadded paper into a waste basket as a game and recorded which hand was used.

(9-19) Finger Tapping--used standard battery-powered psychological apparatus, manufactured and distributed with directions by LaFayette Instrument Company of LaFayette, Indiana.

(20-25) Grooved Peg Board--used standard psychological apparatus, manufactured and distributed with directions by LaFayette Instrument Company of LaFayette, Indiana.

(26) Hagin Test--screening test for reading disability in which subjects are requested to extend arms and fingers straight in front. Poor readers are reported significantly more often to have their writing hand lower than other hand. (Silver, A.A., and Hagin, R.A. Specific reading disability: delineation of the syndrome and relationship to cerebral dominance. Comprehensive Psychiatry, 1960, 1, 126-134.)

(27-33) Hand Dynamometer--used standard instrument produced to test grip strength and recorded weight pulled.

(34-35) Bead Stringing--recorded number of wooden beads the subjects could string in two minutes.

(36-43) Balance Beam--a twelve foot tapered beam was constructed to be six inches wide at one end, tapering to onch width at other extreme. The beam was supported by a block to stand one foot off the floor at the narrow end and on the floor at the wide end for the first trial. For the second trial the beam was supported by two blocks to stand one foot off the floor (level). The number of feet each subject walked before falling off was recorded.

(44-48) Paired Associates--applied typical learning task to the sets of pairs presented below.

baby - cries	eat - cookie	ride - pony
school - store	chair - truck	down - out
window - floor	grass - tree	

(49-62) Rating Scale--used scale scoring system developed by Ernhart and others in St. Louis. Discussions of development of the scale may be found in Ernhart, C.B., Graham, F. K., Eichman, P.L., Marshall, J.M., and Thurston, D. Brain injury in the preschool child: some developmental considerations. II Comparison of brain-injured and normal children. Psychological Monographs, 77 (#544), 1963, 17 pages. Descriptive statements for each category appear below.

Activity--The high end of this scale is represented by behavior which gives the impression of a film run too rapidly. The child, if he sits at all, remains seated only momentarily. His behavior is sometimes described as motor driven. The activity may be limited to gross motor or locomotor functions as walking, running, and so on, but may also include rapid movements of toys and objects. Often, though not always, speech is loud and forceful. The major distinguishing feature is an excess of energy. The extreme low end of this scale is seldom seen in a physically healthy child. Such a child is apathetic, passive and slow in all activities, including those which he enjoys. He seems to be lacking in buoyancy and spontaneity.

Demandingness--To some extent demandingness is characteristic of all young children. They have not yet learned to delay or inhibit satisfaction of immediate needs. However, the child who regularly insists on having his way to the point of violent crying or temper tantrum, is out of the normal range. Less extreme but above normal demandingness may include frequent requests for things not given the child and demands to be permitted to do things other than the tasks presented. The extreme low end of the scale is related to the low end of the activity scale and is represented by passivity and apparent lack of initiative in the performance of any task.

Distractibility--As with several other characteristics, distractibility is, to some extent, normal for the pre-school child and must be considered in relation to age. The extremely distractible child cannot attend long enough to complete even short tasks. He responds readily, though briefly, to irrelevant stimuli and often leaves the task in which he is engaged to explore other features of his environment. He is hard to test when he is unable to wait, even momentarily, for new materials

to be presented. He is likely to be rated also as an overactive child, but it is possible for a passive and inactive child to be overly distractible. The child receiving a low rating on this scale persists for a long time in the solution of a task and may even become disturbed if an attempt is made to substitute other tasks. While it is common for a child to be unwilling to give up on highly preferred task, repetition of the pattern through several tasks and obvious close attention to all tasks is rare in the pre-school age.

Impulsivity--The extreme high on this scale is characterized by a seeming loss of control in which the child suddenly takes off into more expansive and forceful action. It is differentiated from activity and distractibility scales in that the child's initial performance in the session and on specific tasks may be normal. It does not indicate a gradual increase in activity level which is associated with developing rapport or with fatigue. The drawing tasks provide a favorable opportunity for observation. An impulsive child may initially follow directions and attend to stimuli and then change rather suddenly to expansive and forceful scribbling. Impulsivity may be rated relatively high even when compulsiveness is rated high since the initial approach to the task may be neat, compulsive and well controlled. The low end of the scale represents adequately and smoothly paced performance with no apparent variations in performance speed throughout. It is usually observed, in the extreme, in the very mature or precocious child, but may also be characteristic of the over-controlled compulsive child.

Infantilism--The child who is rated very high on this scale is usually one whose behavior is characteristic of a lower age. Speech habits in particular may demonstrate infantilism, especially when it is apparent that the child is capable of speech at a higher level. A high rating is not necessarily associated with low I.Q. or low social quotient. A very low rating on this scale is indicative of exceptional maturity on the part of the child. In the abnormal range it represents an independent child, who is "knowing beyond his age" and who seems almost able to get along without assistance from parents. The child rated low but in the normal range may be quietly self-sufficient or actively precocious.

Negativism--Negativism is a familiar aspect of the behavior of many normal pre-school children, especially among two and three-year olds. It is rated as extreme when even the most appealing tasks are repeatedly refused and when the child becomes emotional in his refusal to be interested. Some children who are initially shy will be negativistic for a brief time until rapport is developed. With the extremely negativistic child, however, it is difficult to say that the low end of this scale can reach the point of abnormality except, possibly, in the extremely passive, compliant child.

Fearfulness--The fearful child is one in whom unfamiliar stimuli, and particularly unfamiliar people, arouse a strong avoidance response. An extreme rating is given to a response of terror with screaming and efforts to hide, usually behind the mother. Such a child is untestable. A high rating, midway between the normal mean and the extreme, is given to the child who might be called shy or timid with strangers. His initial response to the test situation is to hide behind his mother and approach the toys only when he thinks E is not looking. He is likely to remain wary throughout the testing, but will cooperate. He may be worried about physical contact with E, particularly if he suspects a medical examination. The child who becomes at ease fairly readily in a strange place and who is not afraid to engage in any activity which receives parental approval is rated at the mean. It is difficult to make a rating of abnormally fearless on the basis of the examination situation. There are children who might be so rated for failure to show caution in the face of dangerous situations. However, such situations do not occur during the test period. Low ratings, within the normal range, are given to children who show no initial shyness and appear relaxed throughout the examination.

Code Sheet for Form 23

TEACHER APPRAISAL

(1-7) _____ ID Number

	Yes	No	DK	
(11)	__	__	__	Does teacher have regular contact with the parents
(12)	__	__	__	In the teacher's opinion this family has too high expectations for the child
(13)	__	__	__	In teacher's opinion this family's expectations are commensurate with child's ability
(14)	__	__	__	In teacher's opinion the parents exert too much pressure for academic achievement
(15)	__	__	__	In teacher's opinion the parents tend to over-organize the child's time
(16)	__	__	__	In teacher's opinion the parents tend to over-indulge the child
(17)	__	__	__	In teacher's opinion the parents have a wholesome attitude toward the child
(18)	__	__	__	Poor general coordination
(19)	__	__	__	Unsteady gait (when walking or running)
(20)	__	__	__	Is behavior problem at school
(21)	__	__	__	Reads below expected grade level
(22)	__	__	__	Poor acceptance among peer group
(23)	__	__	__	Has poor handwriting
(24)	__	__	__	Has a poor self-concept
(25)	__	__	__	Is not dependable
(26)	__	__	__	Is careless with school work
(27)	__	__	__	Is destructive with school materials
(28)	__	__	__	Academic achievement is very uneven
(29)	__	__	__	Is very restless
(30)	__	__	__	Has tics or jerky movements while working
(31)	__	__	__	Manifests little or no originality
(32)	__	__	__	Is sluggish and sedentary
(33)	__	__	__	Dislikes playground activities
(34)	__	__	__	Is physically underdeveloped
(35)	__	__	__	Is a chronic worrier
(36)	__	__	__	Is shy and withdrawn
(37)	__	__	__	Dislikes competition in any form
(38)	__	__	__	Is very aggressive
(39)	__	__	__	Is physically attractive
(40)	__	__	__	Is easily angered
(41)	__	__	__	Seldom or never contributes voluntarily to work
(42)	__	__	__	Dislikes school
(43)	__	__	__	Is uneasy during unstructured activity
(44)	__	__	__	Is an under-achiever
(45)	__	__	__	Cries easily
(46)	__	__	__	Prefers younger companions
(47)	__	__	__	Has difficulty orienting to sound
(48)	__	__	__	Is a chronic absentee

(49) __ __ __ Is frequently sleepy or lethargic
(50) __ __ __ Has frequent sleepy spells of inattention or staring into space
(51) __ __ __ Complains of frequent headaches
(52) __ __ __ Has frequent skin problem(s) (rashes, etc.)
(53) __ __ __ Is overweight
(54) __ __ __ Has frequent problems with upset stomach or vomiting

Code Sheet for Form 24

NINE POINT SOCIAL DESIRABILITY SCALE

ID Number (1-7) _____.
Sex (8) _____. 1. Male, 2. Female.

Most Desirable			Average			Least Desirable		
9	8	7	6	5	4	3	2	1

_____(11) Item #1
_____(12) Item #2
_____(13) Item #3
_____(14) Item #4
_____(15) Item #5
_____(16) Item #6
_____(17) Item #7
_____(18) Item #8
_____(19) Item #9
_____(20) Item #10

_____(21-22) Total

SOCIAL DESIRABILITY SCALE OF CLASSROOM BEHAVIOR

Grade_____ School_____
Date_____ Teacher_____

Directions: Please rate all pupils on each of the following items. List boys and girls on separate sheets. You will note that the items range from most desirable to least desirable. There are nine numbers provided for rating. The number 5 in the middle represents "average" "average".

Most Desirable			Average			Least Desirable		
9	8	7	6	5	4	3	2	1

Item #1 Active participant; likes to run and play	Reluctant to participate; inactive at play
Item #2 Popular. Gets along well with others	Unpopular. Either ignored or openly disliked by others.
Item #3 Pleasantly fits into the school routine; takes directions well and completes his work.	Does not follow directions well. Gets "hung up" in inappropriate activity
Item #4 Faces up to new situations withour worry or fear; likes a challenge.	Fearful and threatened by new situations, will not venture out.
Item #5 Motivated; has lively interests; and seems aware of what's going on.	Poorly motivated toward most everything; few interests or easily distracted by his surroundings.
Item #6 Always has fun at school, at play, everywhere; cheerful.	Never seems to enjoy much of anything, and sad and worried.

Most Desirable			Average			Least Desirable		
9	8	7	6	5	4	3	2	1

Item #7

Well coordinated physically - maintains control.

Poorly coordinated physically - hyperactive and/or low energy output.

Item #8

Satisfied with normal personal attention; can share activities.

Seeks unusual personal attention; shows off and/or must always have own way.

Item #9

Can take a joke; not easily offended, accepts constructive criticism.

Easily offended; can not stand teasing or criticism.

Item #10

Self-confident, purposeful, poised and emotionally steady; achieves goals.

Lacks confidence, needs constant reassurance and/or gives up easily.

Code Sheet for Form 25

PEER NOMINATION

Card Col.

(1-7) _____ ID NUmber

Item #1

(8-9) _____ Likes to run and play a lot.
(10-11) _____ Never likes to run and play.
(12-13) _____ Not selected.

Item #2

(14-15) _____ Has lots of friends and gets along well with others.
(16-17) _____ Does not have any friends and does not get along with others.
(18-19) _____ Not selected.

Item #3

(20-21) _____ Always finishes school work, listens and does what the teacher says.
(22-23) _____ Never wants to finish school work, does not like to do what the teacher says.
(24-25) _____ Not selected.

Item #4

(26-27) _____ Is not frightened to try new things.
(28-29) _____ Does not like to do new things.
(30-31) _____ Not selected.

Item #5

(32-33) _____ Is always active and interested in what's going on.
(34-35) _____ Is never interested or never likes to take part in the activities that are going on.
(36-37) _____ Not selected.

Item #6

(38-39) _____ Always seems very happy and cheerful.
(40-41) _____ Always seems to be very sad.
(42-43) _____ Not selected.

Item #7

(44-45) _____ Is the best in games and playground activities.
(46-47) _____ Is always falling or stumbling or can't seem to play very good at all.
(48-49) _____ Not selected.

Item #8

(50-51) _____ Is willing to take turns with others when at work or play.

(52-53) _____ Never wants to share or wait their turn.

(54-55) _____ Not selected.

Item #9

(56-57) _____ Can take teasing without getting too angry.

(58-59) _____ Gets mad at most things that he does not like or want.

(60-61) _____ Not selected.

Item #10

(62-63) _____ Enjoys talking in front of the class.

(64-65) _____ Never wants to talk in front of the class.

(66-67) _____ Not selected.

Code Sheet for Form 26

SPEECH & HEARING ANALYSIS

Card I

(1-7)_____ ID Number.

Goldman - Fristoe Film Strip Articulation Test

1 Pass 2 Fail

(11-13)	___	___	___	p
(14-16)	___	___	___	m
(17-19)	___	___	___	n
(20)	___			w
(21)	___			h
(22-24)	___	___	___	b
(25-27)	___	___	___	g
(28-30)	___	___	___	k
(31-33)	___	___	___	f
(34-36)	___	___	___	d
(37-38)		___	___	ŋ
(39)	___			j
(40-42)	___	___	___	t
(43-45)	___	___	___	ʃ
(46-48)	___	___	___	tʃ
(49-51)	___	___	___	l
(52-54)	___	___	___	r
(55-57)	___	___	___	dz
(58-60)	___	___	___	θ
(61-63)	___	___	___	v
(64-66)	___	___	___	s
(67-69)	___	___	___	z
(70-71)	___	___		x/o
(72)	___			bl
(73)	___			br
(74)	___			dr
(75)	___			fl
(76)	___			kl

Card II

(1-7)_____ ID Number.

Goldman - Fristoe Film Strip Articulation Test

(11)	___	kr
(12)	___	pl
(13)	___	skw
(14)	___	sl
(15)	___	st
(16)	___	tr
(17)	___	hw

Code Sheet for Form 26

Card III
(1-7) _____ ID Number.
Durrell Analysis of Reading Difficulty

Visual Memory of Words
1 Pass 2 Fail

(11)	1.	___	___	y b d g f
(12)	2.	___	___	m h n r t
(13)	3.	___	___	no on imp in nip
(14)	4.	___	___	saw war as was waste
(15)	5.	___	___	girl dog boy dig way
(16)	6.	___	___	won no now mow was
(17)	7.	___	___	lack clock black block dark
(18)	8.	___	___	frost first fast firm trust
(19)	9.	___	___	slat last lost lot blast
(20)	10.	___	___	jump jest just jot must
(21)	11.	___	___	clear clean close climb lean
(22)	12.	___	___	par park trap party quart dark part
(23)	13.	___	___	quiet quick quack point quite question quit
(24)	14.	___	___	state elation tasted station stationed started skating
(25)	15.	___	___	nomination notion mention mountain mountains motion mentioned
(26)	16.	___	___	quarter portion bracelet particle practice practical poultice
(27)	17.	___	___	obscure advice above advise advances dance advance
(28)	18.	___	___	sure obscure score secure second server cure
(29)	19.	___	___	contact contain contract contracts contacts capital convice
(30)	20.	___	___	immediate meditates mediate mistake meditate material meditative
(31-33)		_____		SCORE

Oral Reading

Grade (34-36) _____.
Paragraph read (ceiling) (37-39) _____.
Time required (on grade level paragraph) (40-42) _____.
No. of questions answered correctly (43-44) _____.
Vertical lines between phrases that child reads (i.e. word by word reading, etc.) (45-47) _____.
Omissions (words or parts of words) (48-49) _____.
Mispronunciations (use phonetic spelling so exact mispronunciation can be recalled) (50-51) _____.

Repetitions (words or groups of words repeated)
(52-53)_____.
Additions (words or syllables) (54-55)_____.
Hesitations (56-57)_____.
Ignores periods or commas (58-59)_____.
Examiner pronounces word for child (after 5 sec.)
(60-61)_____.

Card IV
(1-7)_____.
Goldman-Fristoe-Woodcock Speech-Sound Discrimination

(Quiet) - Part I			1 yes	2 no	
(11)	___	cash (3)	(26)	___	cap (2)
(12)	___	wake (1)	(27)	___	bear (4)
(13)	___	dig (3)	(28)	___	lake (3)
(14)	___	me (3)	(29)	___	we (4)
(15)	___	fair (4)	(30)	___	sign (2)
(16)	___	catch (4)	(31)	___	coal (4)
(17)	___	tack (2)	(32)	___	mail (1)
(18)	___	rake (1)	(33)	___	pack (2)
(19)	___	knee (1)	(34)	___	sail (4)
(20)	___	jack (3)	(35)	___	bee (4)
(21)	___	big (1)	(36)	___	shack (3)
(22)	___	vine (2)	(37)	___	tea (4)
(23)	___	night (3)	(38)	___	make (2)
(24)	___	cone (4)	(39)	___	back (4)
(25)	___	pail (4)	(40)	___	hair (3)

(Noise) - Part II			1 yes	2 no	
(41)	___	bear (2)	(57)	___	cap (4)
(42)	___	we (4)	(58)	___	shack (2)
(43)	___	lake (3)	(59)	___	tea (3)
(44)	___	coal (4)	(60)	___	make (3)
(45)	___	sign (1)	(61)	___	back (2)
(46)	___	mail (3)	(62)	___	hair (3)
(47)	___	pack (2)	(63)	___	cash (1)
(48)	___	sail (4)	(64)	___	wake (3)
(49)	___	bee (2)	(65)	___	dig (1)
(50)	___	jack (3)	(66)	___	me (4)
(51)	___	knee (2)	(67)	___	fair (2)
(52)	___	big (2)	(68)	___	catch (3)
(53)	___	vine (2)	(69)	___	tack (4)
(54)	___	night (1)	(70)	___	rake (1)
(55)	___	cone (4)			
(56)	___	pail (4)			

(71-72) Total Errors Quiet____
(73-74) Total Errors Noise____

Code Sheet for Form 26

Card V
(1-7) _____ ID Number.

Speech-Sound Discrimination (Quiet) - Part I
Analysis of Types of Errors

(11) Voiced Plosive _____
(12) Voiceless Plosive _____
(13) Voiced Continuant _____
(14) Voiceless Continuant _____
(15) Nasal _____

Speech-Sound Discrimination (Noise) - Part II
Analysis of Types of Errors

(16) Voiced Plosive _____
(17) Voiceless Plosive _____
(18) Voiced Continuant _____
(19) Voiceless Continuant _____
(20) Nasal _____

Code Sheet for Form 31

MEDICAL EXAMINATION - PEDIATRIC

Card I
Part A

ID Number (1-7)_____.
Date (8-12)____/____/____.
Age (13-16)_____.
year(13-14) month(15-16)

Card Col.

(17) _____ Sex-Race 1.WM 2.WF 3.NM 4.NF 5.OtherM 6.Other F

Household Information:

(18) _____ Residence 1.Urban 2.Rural

Family Configuration:

(19) _____ Civil Status Household Head
1.Married 2.Divorced 3.Widowed 4.Separated 5.Never Married 6.Other

Siblings:

(20) _____ Older than patient

(21) _____ Younger than patient

Birth History:

(22) _____ Complications during pregnancy
1. No 2. Yes 9. Unable to recall

(23) _____ Gestation Time
1. Normal 2. Abnormally short 3. Prolonged

(24) _____ Delivery
1. Spontaneous 2. Induced 3. Instrument assisted 4. Other 9. Unable to recall

(25) _____ Birth Weight
1. Less than 4 pounds 2. 4-0 to 5-8
3. 5-9 to 8-8 4. Over 8-8
9. Unable to recall

(26) _____ Neonatal Illness
1.None 2.Jaundice 3.Infection 4.Respiratory Distress syndrome 5.Other or combination 9.Unable to recall

(27) _____ Remained in Newborn Nursery
1. for 5 days or less 2. 6-10 days
3. over 10 days 9. Unable to recall

Developmental History

(28) _____ Sit without support
1. at 7 ± 1 months 2. early (less than 6 mos.) 3. late (9-11 mos.) 4. Very late (12 mos. or after) 9. Unable to recall

(29) _____ Cruise
1. (9-13 mos.) 2. early (less than 9 mos.)
3. late (14-17 mos.) 4. very late (after 17 mos.) 9. Unable to recall

(30) _____ Walk
1. (12-16 mos.) 2. early (before 12 mos.) 3. late (17-20 mos.) 4. very late (after 20 mos.) 9. Unable to recall

(31 _____ Talking (in short sentences)
1. less than 18 mos. 2. 18-23 mos. 3. 24-29 mos. 4. 30-35 mos. 5. 3 yrs. & over 9. Unable to recall

Immunizations:

(32) _____ DTP (baby shots)
1. Primary series of 3 and booster
2. Primary series, no booster
3. Incomplete with booster 4. Incomplete primary without booster 5. Received but number unknown 6. Never received
9. Don't know.

(33) _____ D.T.
1. Booster dose received 2. Never received 3. Not applicable 4. Other
9. Don't know

(34) _____ Tetanus toxoid
1. Routine booster or following injury
2. Never received 9. Don't know

(35) _____ Polio Immunization
1. Oral (sabin) 2. Injection, salk
3. Both 4. Neither 9. Don't know

(36) _____ Measles
1. Received live virus 2. Received killed virus 3. Received, but do not know which
4. Never received 9. Don't know

(37) _____ Other immunization
1. None received 2. Received 9. Don't know

(38) _____ Febrile reaction to immunization
1. No 2. Yes, to DTP 3. Yes, to DT or tetanus toxoid 4. Yes, to Polio 5. Yes, to Small pox 6. Yes, to Measles 7. Other or multiple 8. Unknown to which immunization 9. Don't know

(39) _____ Convulsion following immunization
1. No 2. Yes, to DTP 3. Yes, to DT or tetanus toxoid 4. Yes, to Polio 5. Yes, to Small pox 6. Yes, to Measles 7. Other or multiple 8. Unknown to which immunization 9. Don't know

(40) _____ Change of behavior
1. No 2. Yes, to DTP 3. Yes, to DT or tetanus toxoid 4. Yes,to Polio 5. Yes, to Small pox 6. Yes, to Measles 7. Other or multiple 8. Unknown to which immunization 9. Don't know

Illness History:

(41) _____ Measles
1. No. 2. Yes, and without complications
3. Yes, but with complications
9. Don't know

(42) _____ Mumps
1. No. 2. Yes, and without complications
3. Yes, but with complications
9. Don't know

(43) _____ Chicken Pox
1. No. 2. Yes, and without complications
3. Yes, but with complications
9. Don't know

(44) _____ Rubella
1.No. 2. Yes, and without complications
3. Yes, but with complications 9. Don't know

(45) _____ Whooping Cough
1. No. 2. Yes, and without complications
3. Yes, but with complications 4. Yes, associated cyanosis 9. Don't know

(46) _____ Others (excluding colds, otitis, and tonsillitis)
1. No 2. Yes 9. Don't know

(47-48) _____ Hospitalizations (excluding index illness)
10. Never 20. Surgical 30. Trauma
40. Infection 50. Other medical
6. Single time, combination of reasons
(1 in col. 48,if specified, 0 otherwise)
7. Multiple times (1 in col. 48 if specified, 0 otherwise) 90. Don't know

(49) _____ Total time in hospital
1. Not applicable 2. one day 3. 2-4 days
4. 5-10 days 5. 11-21 days 6. more than 21 days 7. Yes, but don't know 9. don't know

(50) _____ Accidents
1. Never 2. Yes, not involving head & not hospitalized 3. Yes, not involving head but hospitalized 4. Yes, involving head, but not hospitalized 5. Yes, involving head, hospitalized, but not unconscious
6. Yes, involving head, hospitalized, and unconscious 9. Don't know

(51-52) _____ Ingestions (poisons)
10. Never 20. Yes, but not hospitalized, no convulsions and not unconscious 30. Yes, hospitalized but no convulsions & not unconscious 40. Yes, hospitalized with convulsions 50. Yes, hospitalized, unconscious but no convulsions 6. Other, (1 in col. 52 if specified; 0 otherwise)
90. Don't know

(53) _____ Convulsions
1. Never 2. Yes, associated with fever only 3. Yes, associated with fever only, and not since age 5 4. Yes, associated with an accident or ingestion of poisons 5. Yes, with and/or without fever (also after age 5) 6. Yes, but do not recall circumstances 9. Don't know

(54-55) _____ Cardio-respiratory tract
10. No serious illness 2. Cyanosis due to heart disease (1 in col. 55 if specified, 0 otherwise) 3. Cyanosis during respiratory disease (1 in col. 55 if specified, 0 otherwise) 4. Other, (1 in col. 55 if specified, 0 otherwise) 90. Don't know

(56-57) _____ Nervous System
10. No illness, no difficulty 2. Illness or disorder requiring medical care (1 in col. 57 if specified, 0 otherwise) 90. Don't know

(58-59) _____ Other illness or disorder
10. None 2. Yes, (1 in col. 59 if specified, 0 otherwise) 90. Don't know

Code Sheet for Form 31

MEDICAL EXAMINATION - PEDIATRIC

Card II
Part B

ID Number (1-7) _____.
Date (10-15) ____/____/____
mo. da. yr.

Card Col.

(16-17) _____ Weight (pounds)

(18) _____ Weight Percentile
1. less than 3% 2. 3-10% 3. 11-25%
4. 26-50% 5. 51-75% 6. 76-97% 7. 98+%
9. Unable to obtain

(19-20) _____ Head Circumference (inches)

(22-23) _____ Respiration, Pulse, Temperature, and Blood pressure
10. All normal 2. Those obtained normal, but not all obtained (1 in col. 23 if specified, 0 otherwise) 3. One or more abnormal (1 in col. 23 if specified, 0 otherwise)

(24-25) _____ Skin
10. Normal 20. Pallor 3. Abnormal pigmentation (1 in col. 25 if specified, 0 otherwise) 40. Hemangioma 50. Infection 60. Combination of above 7. Other, (1 in col. 25 if specified, 0 otherwise)

(26-27) _____ Head (shape)
10. Normal 2. Abnormal, (1 in col. 27 if specified, 0 otherwise)

(28-29) _____ Eyes
10. Normal, without glasses 20. Normal, with glasses 3. Weakness or extra-ocular muscles (1 in col. 29 if specified, 0 otherwise) 4. Other gross abnormality, (1 in col. 29 if specified, 0 otherwise)

(30-31) _____ Ears
10. Normal external ear and tympanic
2. Abnormal external ear, normal T.M.
(1 in col. 31 if specified, 0 otherwise)
3. Normal external ear, abnormal T.M.
(1 in col. 31 if specified, 0 otherwise)
90. Unable to evaluate due to cerumin

(32-33) _____ Nose
10. Normal 20. Nasal discharge 30. Other abnormality 9. Unable to evaluate
(1 in col. 33 if specified, 0 otherwise)

(34-35) _____ Throat
10. Normal 20. Pharyngitis or tonsillitis

30. Other abnormality 9. Unable to evaluate (1 in col. 35 if specified, 0 otherwise)

(36-37) _____ Teeth
10. Normal 20. Carious or markedly discolored 30. Retarded dentition 4. Other or combined abnormalities (1 in col. 37 if specified, 0 otherwise)

(38-39) _____ Thyroid
10. Not palpable 2. Palpable (1 in col. 39 if specified, 0 otherwise)

(40-41) _____ Lymph Nodes
10. Palpable but normal 2. Enlarged (1 in col. 41 if specified, 0 otherwise)

(42-43) _____ Chest
10. Normal appearance 2. Abnormal configuration (1 in col.43 if specified, 0 otherwise)

(44-45) _____ Lungs
10. Normal breath sounds 2. Abnormal breath sounds (1 in col. 45 in specified, 0 otherwise)

Heart

(46-47) _____ Cyanosis
10. Absent 2. Present (1 in col. 47 if specified, 0 otherwise)

(48-49) _____ Clubbing
10. Absent 2. Present (1 in col. 49 if specified, 0 otherwise)

(50-51) _____ Murmurs
10. Absent 2. Present (1 in col. 51 if specified, 0 otherwise)

(52-53) _____ Irregular rhythm or abnormal rate
10. Absent 2. Present (1 in col. 53 if specified, 0 otherwise)

(54-55) _____ Other findings
10. Absent 2. Present (1 in col. 55 if specified, 0 otherwise)

(56-57) _____ Peripheral pulses (femoral and radial)
10. Absent 2. Present (1 in col. 57 if specified, 0 otherwise)

(58-59) _____ Hepatomegaly
10. Absent 2. Present (1 in col. 59 if specified, 0 otherwise)

(60-61) _____ Splenomegaly
10. Absent 2. Present (1 in col. 61 if specified, 0 otherwise)

(62-63) _____ Other abdominal organs or masses
10. Not palpable 2. Palpable (1 in col. 63 if specified, 0 otherwise)

(64-65) _____ Genitalia
10. Normal 2. Abnormal (1 in col. 65 if specified, 0 otherwise)

(66-68) _____ Spine
100. Normal appearance 210. Hyploris 220. Scoliosis 230. Lordosis 300. Sacral dimple 41. Other abnormality (1 in co... 68 if specified, 0 otherwise) 420. Combination of abnormalities

69-70) _____ Joints
10. Normal range of motion at all joints
2. Restricted movement of joint(s), (1 in col. 70 if specified, 0 otherwise)

(71-72) _____ Muscles
10. Normal mass, symmetrical 2. Abnormal mass or asymmetrical (1 in col. 72 if specified, 0 otherwise)

Code Sheet for Form 32

MEDICAL EXAMINATION – NEUROLOGICAL

Part I
ID Number (1-7) _____.
Age (8-9) _____.

	Pos		Sus		Neg
	1.	2.	3.	4.	5.
Motor Stance impersistance	++++	+++	++	+	
Arms extended					
(11) puts arms where	___	___	___	___	___
(12) arms drop or spread	___	___	___	___	___
Head rotation					
(13) arms drop or spread	___	___	___	___	___
(14) flexion at elbows					
(15) drop of one arm	___	___	___	___	___
(16) Irregular position of wrist, hand, or fingers	___	___	___	___	___
Whirling					
(17) with feet planted	___	___	___	___	___
(18) feet follow	___	___	___	___	___
(19) resistance to passive rotation	___	___	___	___	___
Copy finger movement					
(20) power of close observation & quality of movement	___	___	___	___	___
Abnormal movement					
(21) choreiform	___	___	___	___	___
(22) athetoid	___	___	___	___	___
(23) tremor	___	___	___	___	___
Coordination					
(24) heel walk	___	___	___	___	___
(25) toe walk	___	___	___	___	___
(26) hop on one foot	___	___	___	___	___
(27) stand on one foot	___	___	___	___	___
(28) skip	___	___	___	___	___
(29) walk a line (or a 2x4)	___	___	___	___	___
(30) associated movements in above	___	___	___	___	___
(31) heel-leg	___	___	___	___	___
(32) foot tapping	___	___	___	___	___
Coordination					
(33) finger - nose	___	___	___	___	___
(34) finger - pursuit	___	___	___	___	___
(35) fingers - thumb	___	___	___	___	___
Diodochocinesia					
(36) hands	___	___	___	___	___
(37) index finger - thumb	___	___	___	___	___
Complex integration of movement					
(38) papers & clip	___	___	___	___	___

Associated movements in all the above					
(39) symmetrical	___	___	___	___	___
(40) nonsymmetrical	___	___	___	___	___
Reflexes & thresholds					
(41) deep tendon reflexes, hyper, hypo, asym.	___	___	___	___	___
(42) plantar reflex: dorsi-flexion of great toe clear	___	___	___	___	___
(43) plantar reflex: dorsi-flexion of great toe irregular	___	___	___	___	___
(44) ticklish or painful	___	___	___	___	___
(45) clonus- sustained, unsustained	___	___	___	___	___
Anatomical					
(46) unusual configuration, stigmata	___	___	___	___	___
Right-left confusion					
(53) on self	___	___	___	___	___
(54) on examiner or objects	___	___	___	___	___
(55) body movements by directions	___	___	___	___	___
Mixed Laterality					
(56) hand	1. R				___
(57) foot	2. L				___
(58) eye	3. Unable to determine				___
Two stimuli discrimination					
(59) tactile- hand-face test	___	___	___	___	___
(60) Separation of movements, degree of					___
1. can't wink either eye +++					
2. can't wink one eye ++					
3. winks only with grimace +					
Head moves with EOM					
(61) after initial direction	___	___	___	___	___
(62) after reminder, returns to following	___	___	___	___	___
(63) head must be held	___	___	___	___	___
(64) shut one eye and stick out tongue	___	___	___	___	___
(65) rapidly blink eyes and hold out tongue	___	___	___	___	___
EOM, irregularities of					
(66) fixed strabismus	___	___	___	___	___
(67) transient strabismus	___	___	___	___	___
(68) nystagmus	___	___	___	___	___
Pupils					
(69) to light abnormal	___	___	___	___	___
(70) to accomodation, abnormal	___	___	___	___	___
Motor impersistance					
(71) tongue extended 20 sec.	___	___	___	___	___
(72) eyes shut 20 sec.	___	___	___	___	___
(73) lateral gaze 20 sec.	___	___	___	___	___
(74) lateral gaze with distracting finger wiggle	___	___	___	___	___

Code Sheet for Form 33

PSYCHIATRIC EVALUATION

Card Col.

Patient Identification

(1-7) _____ ID Number

(16-21) _____ Date of Birth

(22) _____ Separation Anxiety
1. Severe 2. Moderate 3. Mild 4. Absent

Child Appearance

(23) _____ Grooming and general care
1. Poorly cared for, neglected 2. Appropriate care and attention to appearance
3. Moderately overdone 4. Overdone to extreme

(24) _____ Visible physical abnormality
1. Yes 2. No

(25) _____ Activity Level
1. Hyperactive 2. Hypoactive 3. Normoactive

Motor Coordination:

(26) _____ Gross
1. Better than average 2. Below average 3. Average

(27) _____ Fine
1. Better than average 2. Below average 3. Average

(28) _____ Anxiety Level
1. Above expected level 2. Below expected level 3. Expected level

(29) _____ Affect
1. Apathetic 2. Affect flat 3. Affect blunted 4. Affect appropriate 5. Inappropriate

(30) _____ Emotional Reactivity
1. Shows little or no reactivity 2. Shows much reactivity (emotionally labile) 3. Normal reactivity

(31) _____ Mood
1. Ecstatic 2. Elated 3. Normal 4. Depressed 5. Fluctuating

(32) _____ Relatedness to Examiner
1. Normal 2-8. Abnormal
2. Manipulative 3. Seductive 4. Aloof 5. Covert hostility (e.g. passivity) 6. Overt hostility (e.g. aggression, destructiveness) 7. Constricted behavior 8. Frightened of examiner

(33) _____ Dependency
1. Overly dependent 2. Overly independent 3. Normal

(34) _____ Attention span
1. Extremely short 2. Short 3. Normal
4. Long 5. Extremely long

(35) _____ Distractibility
1. Pronounced 2. High 3. Normal
4. Low 5. Markedly low

(36) _____ Perseveration
1. Normal 2. High 3. Pronounced

(37) _____ Goal Orientation
1. Lacking 2. Relatively lacking 3. Normal
4. High 5. Markedly high

Communication

(38) _____ Type
1. Mainly non-verbal 2. Appropriately mixed
3. Mainly verbal

(39) _____ Spontaneity
1. Very guarded (answers no questions)
2. Guarded (answers questions only)
3. Somewhat guarded 4. Spontaneous (free)

(40) _____ Content
1. Relevant 2. Irrelevant
3. Inappropriate and bizarre

Pattern of Symptoms noted from use of Play Material or Verbalized

(41) _____ Imagination & phantasy
1. Excessive 2. Constricted or impoverished
3. within normal range

(42) _____ Memory
1. Normal 2. Abnormal

(43) _____ Orientation
1. Realistic 2. Unrealistic

(44) _____ Body Image
1. Normal 2-5. Abnormal
2. Boundaries of self system loose.
3. Diffuse and extended 4. Depersonalization (feeling of strangeness of self)
5. Ego alien or ego dystonic symptom (not accepted as part of self)

(45) _____ Tics
1. Present 2. Absent (if present specify)

(46) _____ Echopraxia
1. Present 2. Absent

(47) _____ Habitual Manipulation
1. Present 2. Absent

(48-49) _____ Kind of Manipulation

01. None
02. Oral (sucking fingers or thumb, biting nails, protruding tongue)
03. Nasal (picking nose, wrinkling nose)
04. Hirsutal (pulling and twisting hair, scratching head)
05. Irritational (scratching body)
06. Manual (picking fingers, wringing hands, clenching fists)
07. Ocular (rubbing eyes, blinking eyelids, winking)
08. Aural (pulling ear, picking ear)
09. Genital (manipulating genitalia, thigh rubbing)
10. Facial (grimacing, twitching muscles)
11. More than one kind of manipulation

(50) _____ Sexual Identification

1. Normal 2. Abnormal

(51) _____ Genetic level of functioning

1. Predominant latent level of psychosexual functioning
2. Below latent level

Code Sheet for Form 34

VISUAL

Card Col.

(1-7) _____ ID Number

(8) _____ Wearing glasses?
1. Yes 2. No

(9) _____ Test 1 - Simultaneous Vision (far point)
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(10) _____ Test 2 - Vertical Posture (far point
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(11) _____ Test 3 - Lateral Posture (far point)
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(12) _____ Test 4 - Fusion (far point)
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(13) _____ Test 5 - Right Eye, Usable Vision (far point)
1. Normal 2. Underconvergence
3. Overconvergence 4. Overconvergence, Normal for young children
9. Inadequate response

(14) _____ Test 6 - Left Eye, Usable Vision (far point)
1. Normal 2. Underconvergence
3. Overconvergence 4. Overconvergence, Normal for young children
9. Inadequate response

(15) _____ Test 7 - Stereopsis (far point)
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(16) _____ Test 10 - Lateral Posture (near point)
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(17) _____ Test 11 - Fusion (near point)
1. Normal 2. Underconvergence
3. Overconvergence 9. Inadequate response

(18) _____ Test 12 - Usable Vision-Right (near point)
1. Normal 2. Underconvergence
3. Overconvergence 4. Overconvergence, Normal for young children
9. Inadequate response

(19) _____ Test 13 - Usable Vision-Left (near point)
1. Normal 2. Underconvergence
3. Overconvergence 4. Overconvergence, Normal for young children
9. Inadequate response

(20) _____ Test 14 - Usable Vision-Both (near point)
1. Normal 2. Underconvergence
3. Overconvergence 4. Overconvergence, Normal for young children
9. Inadequate response

APPENDIX C

PRINT-OUTS OF CATEGORICAL RAW DATA

ITEM SCORING
FORM 10 FAMILY INTERVIEW PM STUDY CARD 1
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 50 ITEMS WITH AN UPPER RESPONSE LIMIT OF 14
THE FORMAT IS

(7X,2I1,1CX,2I1,3I2,4I1,3I2,3I1,I2,3I1,I2,10I1,I2,I1,I2,15I1)

ITEM		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	EXPERIMENTAL	14	1	2	3	4	0	0	0	1	0	0	0	0	0
	CONTROL	13	0	4	2	6	0	0	0	0	0	0	0	0	0
2	EXPERIMENTAL	22	1	2	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	22	0	3	0	0	0	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	16	9	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	16	9	0	0	0	0	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	18	7	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	8	5	2	1	1	0	2	0	0	0	0	0	0	0
	CONTROL	7	3	2	1	1	0	0	1	0	0	0	0	0	0
6	EXPERIMENTAL	10	2	0	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	10	5	2	0	0	0	0	0	0	0	0	0	0	0
7	EXPERIMENTAL	0	10	9	5	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	8	5	11	0	1	0	0	0	0	0	0	0	0
8	EXPERIMENTAL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
9	EXPERIMENTAL	20	5	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0	0	0	0	0	0
10	EXPERIMENTAL	19	5	0	0	1	0	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	21	0	0	2	0	0	0	1	1	0	0	0	0	0
	CONTROL	15	0	0	1	2	0	5	1	1	0	0	0	0	0
12	EXPERIMENTAL	0	1	1	0	1	0	1	0	0	21	0	0	0	0
	CONTROL	0	1	1	4	1	0	0	2	0	16	0	0	0	0
13	EXPERIMENTAL	0	0	1	6	6	6	2	2	2	0	0	0	0	0
	CONTROL	0	0	0	2	3	8	5	4	2	1	0	0	0	0

14	EXPERIMENTAL	0	0	2	8	7	3	2	2	0	1	0	0	0	0
	CONTROL	0	0	2	9	3	7	1	2	1	0	0	0	0	0
15	EXPERIMENTAL	1	0	4	6	2	9	1	1	1	0	0	0	0	0
	CONTROL	0	0	1	8	5	4	2	3	2	0	0	0	0	0
16	EXPERIMENTAL	18	7	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	18	7	0	0	0	0	0	0	0	0	0	0	0	0
17	EXPERIMENTAL	16	7	2	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	15	6	3	0	1	0	0	0	0	0	0	0	0	0
18	EXPERIMENTAL	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0	0	3	0	0	0
19	EXPERIMENTAL	5	17	0	0	1	2	0	0	0	0	0	0	0	0
	CONTROL	5	15	1	1	2	1	0	0	0	0	0	0	0	0
20	EXPERIMENTAL	0	1	6	14	3	0	0	0	1	0	0	0	0	0
	CONTROL	1	1	6	15	2	0	0	0	0	0	0	0	0	0
21	EXPERIMENTAL	22	3	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0	0	0	0	0	0
22	EXPERIMENTAL	6	1	5	11	1	0	0	0	0	1	0	0	0	0
	CONTROL	5	2	4	7	1	1	0	0	0	5	0	0	0	0
23	EXPERIMENTAL	21	4	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	10	15	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	12	13	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	10	15	0	0	0	0	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	10	14	0	0	0	0	0	0	1	0	0	0	0	0
	CONTROL	4	21	0	0	0	0	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	1	7	17	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	1	3	21	0	0	0	0	0	0	0	0	0	0	0
28	EXPERIMENTAL	0	4	7	14	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	1	10	14	0	0	0	0	0	0	0	0	0	0
29	EXPERIMENTAL	2	7	13	3	0	0	0	0	0	0	0	0	0	0
	CONTROL	1	11	10	3	0	0	0	0	0	0	0	0	0	0
30	EXPERIMENTAL	1	2	19	3	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	3	18	4	0	0	0	0	0	0	0	0	0	0
31	EXPERIMENTAL	0	0	0	1	21	3	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	1	19	4	0	0	1	0	0	0	0	0

32	EXPERIMENTAL	25	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0	0	0	0	0
33	EXPERIMENTAL	9	8	2	3	2	1	0	0	0	0	0	0	0
	CONTROL	0	0	0	1	2	0	0	0	0	22	0	0	0
34	EXPERIMENTAL	17	5	3	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	0	0	22	0	0	0	0	0	0	0	0	0
35	EXPERIMENTAL	16	4	0	0	1	0	0	2	1	0	1	0	0
	CONTROL	1	0	1	0	0	1	0	0	0	0	0	22	0
36	EXPERIMENTAL	8	3	12	2	0	0	0	0	0	0	0	0	0
	CONTROL	10	9	6	0	0	0	0	0	0	0	0	0	0
37	EXPERIMENTAL	22	2	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	22	2	1	0	0	0	0	0	0	0	0	0	0
38	EXPERIMENTAL	2	14	8	1	0	0	0	0	0	0	0	0	0
	CONTROL	4	13	7	1	0	0	0	0	0	0	0	0	0
39	EXPERIMENTAL	9	15	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	14	11	0	0	0	0	0	0	0	0	0	0	0
40	EXPERIMENTAL	5	13	6	1	0	0	0	0	0	0	0	0	0
	CONTROL	4	16	3	2	0	0	0	0	0	0	0	0	0
41	EXPERIMENTAL	0	0	11	2	1	1	10	0	0	0	0	0	0
	CONTROL	0	0	5	0	6	1	13	0	0	0	0	0	0
42	EXPERIMENTAL	10	13	1	1	0	0	0	0	0	0	0	0	0
	CONTROL	9	14	1	1	0	0	0	0	0	0	0	0	0
43	EXPERIMENTAL	0	11	14	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	14	9	0	0	0	0	0	2	0	0	0	0
44	EXPERIMENTAL	5	1	3	1	4	6	3	1	1	0	0	0	0
	CONTROL	2	2	3	10	3	3	0	2	0	0	0	0	0
45	EXPERIMENTAL	6	3	4	3	8	0	0	1	0	0	0	0	0
	CONTROL	7	1	4	4	6	1	0	2	0	0	0	0	0
46	EXPERIMENTAL	1	4	3	4	11	1	0	1	0	0	0	0	0
	CONTROL	2	1	10	2	9	1	0	0	0	0	0	0	0
47	EXPERIMENTAL	15	6	2	0	2	0	0	0	0	0	0	0	0
	CONTROL	13	8	1	0	2	0	0	0	1	0	0	0	0
48	EXPERIMENTAL	11	5	5	0	3	0	0	0	1	0	0	0	0
	CONTROL	13	9	1	0	2	0	0	0	0	0	0	0	0
49	EXPERIMENTAL	0	2	0	19	1	0	0	0	3	0	0	0	0
	CONTROL	0	0	0	24	0	0	0	0	1	0	0	0	0

50	EXPERIMENTAL	2	13	5	4	C	C	0	C	1	C	0	0	0	C
	CONTROL	4	10	3	6	0	0	0	0	2	0	0	0	0	0

ITEM SCORING
FORM 10 FAMILY INTERVIEW PM STUDY CARD 2
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 67 ITEMS WITH AN UPPER RESPONSE LIMIT OF 14
THE FORMAT IS

(6X,1X,14I1,I2,24I1,I2,8I1,I2,17I1,I1)

ITEM		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	EXPERIMENTAL	11	4	5	4	0	0	0	0	1	0	0	0	0	0
	CONTROL	7	6	5	6	0	0	0	0	1	0	0	0	0	0
2	EXPERIMENTAL	20	5	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	16	8	1	0	0	0	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	1	0	1	17	2	2	1	1	0	0	0	0	0	0
	CONTROL	2	0	0	16	4	0	3	0	0	0	0	0	0	0
4	EXPERIMENTAL	17	7	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	22	2	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	21	3	1	0	0	0	0	0	0	0	0	0	0	0
6	EXPERIMENTAL	11	0	2	0	0	11	1	0	0	0	0	0	0	0
	CONTROL	6	0	2	0	0	14	3	0	0	0	0	0	0	0
7	EXPERIMENTAL	1	23	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	1	23	0	0	0	0	0	0	1	0	0	0	0	0
8	EXPERIMENTAL	0	0	0	0	0	2	0	0	23	0	0	0	0	0
	CONTROL	0	0	0	1	0	1	0	0	23	0	0	0	0	0
9	EXPERIMENTAL	0	4	0	0	16	3	0	0	2	0	0	0	0	0
	CONTROL	0	2	0	0	17	4	0	0	2	0	0	0	0	0
10	EXPERIMENTAL	19	2	1	1	0	1	0	0	1	0	0	0	0	0
	CONTROL	19	5	1	0	0	0	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	5	4	11	3	1	1	0	0	0	0	0	0	0	0
	CONTROL	7	7	7	2	1	1	0	0	0	0	0	0	0	0
12	EXPERIMENTAL	5	13	2	4	0	0	0	0	1	0	0	0	0	0
	CONTROL	7	9	2	7	0	0	0	0	0	0	0	0	0	0
13	EXPERIMENTAL	9	2	5	6	C	2	0	0	1	0	0	0	0	0
	CONTROL	11	3	5	4	0	2	0	0	0	0	0	0	0	0

14	EXPERIMENTAL	0	2	7	8	3	1	0	0	4	0	0	0	0	0
	CONTROL	0	0	10	7	2	1	1	2	2	0	0	0	0	0
15	EXPERIMENTAL	0	6	4	1	3	2	5	1	3	0	0	0	0	0
	CONTROL	0	4	4	0	2	1	8	3	0	2	1	0	0	0
16	EXPERIMENTAL	13	9	1	2	0	0	0	0	0	0	0	0	0	0
	CONTROL	18	5	2	0	0	0	0	0	0	0	0	0	0	0
17	EXPERIMENTAL	19	5	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	20	3	1	1	0	0	0	0	0	0	0	0	0	0
18	EXPERIMENTAL	1	7	17	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	8	14	0	0	0	0	0	0	0	0	0	0	0
19	EXPERIMENTAL	6	2	4	13	0	0	0	0	0	0	0	0	0	0
	CONTROL	2	9	2	12	0	0	0	0	0	0	0	0	0	0
20	EXPERIMENTAL	23	1	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0	0	0	0	0	0
21	EXPERIMENTAL	4	15	5	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	18	3	1	0	0	0	0	0	0	0	0	0	0
22	EXPERIMENTAL	5	16	4	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	4	15	6	0	0	0	0	0	0	0	0	0	0	0
23	EXPERIMENTAL	20	1	4	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	1	1	0	0	0	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	9	2	13	0	1	0	0	0	0	0	0	0	0	0
	CONTROL	10	0	15	0	0	0	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	3	17	5	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	1	19	5	0	0	0	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	16	9	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	6	3	16	0	0	0	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	5	20	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	2	7	0	14	0	0	1	0	1	0	0	0	0	0
28	EXPERIMENTAL	14	5	6	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	15	7	1	2	0	0	0	0	0	0	0	0	0	0
29	EXPERIMENTAL	3	22	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0	0	0	0	0	0
30	EXPERIMENTAL	5	19	0	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	17	0	5	0	0	0	0	0	0	0	0	0	0
31	EXPERIMENTAL	5	0	6	0	2	2	2	1	7	0	0	0	0	0
	CONTROL	4	4	5	0	2	1	4	0	5	0	0	0	0	0

32	EXPERIMENTAL	1	15	0	3	0	0	0	0	6	0	0	0	0	0
	CONTROL	1	16	3	3	0	0	0	0	2	0	0	0	0	0
33	EXPERIMENTAL	24	0	0	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	0	2	0	0	0	0	0	0	0	0	0	0	0
34	EXPERIMENTAL	14	6	2	1	2	0	0	0	0	0	0	0	0	0
	CONTROL	19	1	3	0	1	0	0	0	1	0	0	0	0	0
35	EXPERIMENTAL	3	22	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	4	21	0	0	0	0	0	0	0	0	0	0	0	0
36	EXPERIMENTAL	1	0	0	1	1	1	20	0	1	0	0	0	0	0
	CONTROL	1	0	0	2	5	0	16	0	1	0	0	0	0	0
37	EXPERIMENTAL	15	3	0	2	0	4	0	0	1	0	0	0	0	0
	CONTROL	13	2	0	3	0	5	0	0	2	0	0	0	0	0
38	EXPERIMENTAL	21	4	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0	0	0	0	0	0
39	EXPERIMENTAL	19	0	0	2	3	0	0	0	1	0	0	0	0	0
	CONTROL	22	0	0	3	0	0	0	0	0	0	0	0	0	0
40	EXPERIMENTAL	2	1	2	0	0	8	0	0	0	8	3	1	0	0
	CONTROL	1	1	7	1	0	7	0	0	0	8	0	0	0	0
41	EXPERIMENTAL	21	1	3	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	21	3	1	0	0	0	0	0	0	0	0	0	0	0
42	EXPERIMENTAL	2	3	5	4	1	1	6	3	0	0	0	0	0	0
	CONTROL	3	5	9	1	4	1	0	2	0	0	0	0	0	0
43	EXPERIMENTAL	16	8	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	17	5	3	0	0	0	0	0	0	0	0	0	0	0
44	EXPERIMENTAL	14	0	0	1	0	0	0	1	9	0	0	0	0	0
	CONTROL	20	0	1	0	0	0	0	0	4	0	0	0	0	0
45	EXPERIMENTAL	12	4	7	0	0	0	0	0	2	0	0	0	0	0
	CONTROL	13	5	5	1	0	0	0	0	1	0	0	0	0	0
46	EXPERIMENTAL	1	5	0	1	0	0	1	16	1	0	0	0	0	0
	CONTROL	0	2	2	1	0	0	4	14	2	0	0	0	0	0
47	EXPERIMENTAL	10	15	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	9	15	0	1	0	0	0	0	0	0	0	0	0	0
48	EXPERIMENTAL	11	12	0	2	0	0	0	0	0	0	0	0	0	0
	CONTROL	7	14	2	2	0	0	0	0	0	0	0	0	0	0
49	EXPERIMENTAL	0	4	3	1	5	0	5	2	1	4	0	0	0	0
	CONTROL	0	1	4	1	3	2	8	1	0	5	0	0	0	0

50	EXPERIMENTAL	0	0	4	2	4	1	5	8	1	0	0	0	0	0
	CONTROL	0	0	6	1	2	2	9	4	1	0	0	0	0	0
51	EXPERIMENTAL	5	2	1	0	1	0	14	2	0	0	0	0	0	0
	CONTROL	2	3	1	0	1	1	15	1	1	0	0	0	0	0
52	EXPERIMENTAL	8	1	16	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	4	0	19	0	0	0	0	1	1	0	0	0	0	0
53	EXPERIMENTAL	7	17	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	5	19	0	1	0	0	0	0	0	0	0	0	0	0
54	EXPERIMENTAL	0	1	2	22	0	0	0	0	0	0	0	0	0	0
	CONTROL	1	0	4	20	0	0	0	0	0	0	0	0	0	0
55	EXPERIMENTAL	0	0	0	1	0	1	1	22	0	0	0	0	0	0
	CONTROL	1	0	0	0	1	2	1	20	0	0	0	0	0	0
56	EXPERIMENTAL	19	2	0	1	1	2	0	0	0	0	0	0	0	0
	CONTROL	22	0	0	0	1	1	1	0	0	0	0	0	0	0
57	EXPERIMENTAL	24	0	0	0	1	0	0	0	0	0	0	0	0	0
	CONTROL	24	0	0	0	1	0	0	0	0	0	0	0	0	0
58	EXPERIMENTAL	7	15	1	0	1	0	1	0	0	0	0	0	0	0
	CONTROL	6	12	0	0	7	0	0	0	0	0	0	0	0	0
59	EXPERIMENTAL	20	1	2	2	0	0	0	0	0	0	0	0	0	0
	CONTROL	17	4	2	2	0	0	0	0	0	0	0	0	0	0
60	EXPERIMENTAL	2	22	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0	0	0	0	0	0
61	EXPERIMENTAL	3	1	0	0	2	3	2	2	12	0	0	0	0	0
	CONTROL	1	0	0	0	3	4	1	0	16	0	0	0	0	0
62	EXPERIMENTAL	0	15	0	0	9	0	0	0	1	0	0	0	0	0
	CONTROL	0	16	0	0	8	0	0	0	1	0	0	0	0	0
63	EXPERIMENTAL	1	2	0	0	1	2	1	4	14	0	0	0	0	0
	CONTROL	0	0	0	0	2	7	0	7	9	0	0	0	0	0
64	EXPERIMENTAL	1	19	0	0	4	0	0	0	1	0	0	0	0	0
	CONTROL	0	22	0	0	2	0	0	1	0	0	0	0	0	0
65	EXPERIMENTAL	12	0	0	1	11	0	0	0	1	0	0	0	0	0
	CONTROL	12	0	0	1	9	0	0	0	3	0	0	0	0	0
66	EXPERIMENTAL	9	0	0	1	2	12	1	0	0	0	0	0	0	0
	CONTROL	7	2	0	0	1	15	0	0	0	0	0	0	0	0
67	EXPERIMENTAL	16	7	1	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	17	6	1	1	0	0	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 10 FAMILY INTERVIEW PM STUDY CARD 3
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   32 ITEMS WITH AN UPPER RESPONSE LIMIT OF   14
THE FORMAT IS

(7X,19I1,2I2,11I1)

ITEM		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	EXPERIMENTAL	5	4	0	0	1	7	3	0	5	0	0	0	0	0
	CONTROL	3	2	0	2	3	10	3	0	2	0	0	0	0	0
2	EXPERIMENTAL	16	1	1	7	0	0	0	0	0	0	0	0	0	0
	CONTROL	12	5	0	8	0	0	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	24	1	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	18	1	1	4	1	0	0	0	0	0	0	0	0	0
	CONTROL	21	2	0	2	0	0	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	6	14	4	0	0	1	0	0	0	0	0	0	0	0
	CONTROL	7	15	2	0	0	1	0	0	0	0	0	0	0	0
6	EXPERIMENTAL	17	6	0	2	0	0	0	0	0	0	0	0	0	0
	CONTROL	14	10	1	0	0	0	0	0	0	0	0	0	0	0
7	EXPERIMENTAL	14	8	0	3	0	0	0	0	0	0	0	0	0	0
	CONTROL	17	4	1	3	0	0	0	0	0	0	0	0	0	0
8	EXPERIMENTAL	3	3	0	19	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	11	1	13	0	0	0	0	0	0	0	0	0	0
9	EXPERIMENTAL	23	0	2	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0	0	0	0	0	0
10	EXPERIMENTAL	12	0	1	2	0	10	0	0	0	0	0	0	0	0
	CONTROL	7	0	0	3	0	15	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	3	19	0	1	0	0	0	0	2	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0	0	0	0	0	0
12	EXPERIMENTAL	24	0	0	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	21	1	3	0	0	0	0	0	0	0	0	0	0	0
13	EXPERIMENTAL	2	7	6	10	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	11	5	5	0	0	0	0	1	0	0	0	0	0
14	EXPERIMENTAL	6	0	6	13	0	0	0	0	0	0	0	0	0	0
	CONTROL	8	6	7	4	0	0	0	0	0	0	0	0	0	0
15	EXPERIMENTAL	16	4	3	0	0	0	0	0	2	0	0	0	0	0

	CONTROL	17	4	4	0	0	0	0	0	0	0	0	0	0	0
16	EXPERIMENTAL	3	3	2	5	4	2	1	3	2	0	0	0	0	0
	CONTROL	0	1	2	7	2	2	1	9	1	0	0	0	0	0
17	EXPERIMENTAL	13	9	0	0	0	0	0	0	3	0	0	0	0	0
	CONTROL	12	12	0	0	0	0	0	0	1	0	0	0	0	0
18	EXPERIMENTAL	1	3	0	1	4	2	4	8	2	0	0	0	0	0
	CONTROL	1	3	0	2	2	1	1	12	3	0	0	0	0	0
19	EXPERIMENTAL	14	11	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	14	10	0	0	0	0	0	0	1	0	0	0	0	0
20	EXPERIMENTAL	10	1	1	5	1	5	0	0	1	1	0	0	0	0
	CONTROL	10	2	0	9	1	2	0	0	0	1	0	0	0	0
21	EXPERIMENTAL	1	3	0	5	3	1	8	0	4	0	0	0	0	0
	CONTROL	1	3	0	1	2	2	12	0	2	1	1	0	0	0
22	EXPERIMENTAL	0	16	5	1	3	0	0	0	0	0	0	0	0	0
	CONTROL	0	12	7	0	5	0	0	1	0	0	0	0	0	0
23	EXPERIMENTAL	13	3	7	2	0	0	0	0	0	0	0	0	0	0
	CONTROL	12	8	5	0	0	0	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	1	17	6	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	3	18	3	1	0	0	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	7	12	5	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	9	10	6	0	0	0	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	3	8	3	0	1	0	3	1	6	0	0	0	0	0
	CONTROL	0	6	3	1	3	0	3	3	6	0	0	0	0	0
27	EXPERIMENTAL	13	5	0	0	0	0	2	0	5	0	0	0	0	0
	CONTROL	10	3	2	0	0	0	6	0	4	0	0	0	0	0
28	EXPERIMENTAL	0	3	8	13	0	0	0	0	1	0	0	0	0	0
	CONTROL	1	3	6	15	0	0	0	0	0	0	0	0	0	0
29	EXPERIMENTAL	1	2	11	9	1	0	0	0	1	0	0	0	0	0
	CONTROL	3	4	6	11	1	0	0	0	0	0	0	0	0	0
30	EXPERIMENTAL	8	4	13	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	9	8	8	0	0	0	0	0	0	0	0	0	0	0
31	EXPERIMENTAL	15	6	0	1	0	2	0	0	1	0	0	0	0	0
	CONTROL	13	11	0	1	0	0	0	0	0	0	0	0	0	0
32	EXPERIMENTAL	17	0	8	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	13	5	7	0	0	0	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 21 SCHOOL ADJUSTMENT - GENERAL INFORMATION PM STUDY
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 6 ITEMS WITH AN UPPER RESPONSE LIMIT OF 14
THE FORMAT IS

 (10X,4I1,I2,3X,I1)

ITEM		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	EXPERIMENTAL	0	11	6	8	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	11	6	8	0	0	0	0	0	0	0	0	0	0
2	EXPERIMENTAL	18	6	1	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	18	6	1	0	0	0	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	0	2	0	1	22	0	0	0	0	0	0	0	0	0
	CONTROL	0	2	1	0	22	0	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	2	0	16	7	0	0	0	0	0	0	0	0	0	0
	CONTROL	6	4	13	2	0	0	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	10	1	3	0	2	3	0	0	0	0	3	0	2	1
	CONTROL	4	1	4	1	3	1	0	0	0	0	9	2	0	0
6	EXPERIMENTAL	2	8	15	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	9	16	0	0	0	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 23 TEACHER APPRAISAL PM STUDY
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 44 ITEMS WITH AN UPPER RESPONSE LIMIT OF 9
THE FORMAT IS

(10X,44I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
2	EXPERIMENTAL	4	18	3	0	0	0	0	0	0
	CONTROL	3	21	1	0	0	0	0	0	0
3	EXPERIMENTAL	16	5	4	0	0	0	0	0	0
	CONTROL	18	5	2	0	0	0	0	0	0
4	EXPERIMENTAL	1	23	1	0	0	0	0	0	0
	CONTROL	2	19	4	0	0	0	0	0	0
5	EXPERIMENTAL	0	15	10	0	0	0	0	0	0
	CONTROL	0	16	9	0	0	0	0	0	0
6	EXPERIMENTAL	5	16	4	0	0	0	0	0	0
	CONTROL	2	17	6	0	0	0	0	0	0
7	EXPERIMENTAL	20	3	2	0	0	0	0	0	0
	CONTROL	18	5	2	0	0	0	0	0	0
8	EXPERIMENTAL	4	21	0	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
9	EXPERIMENTAL	6	18	0	0	0	0	0	0	1
	CONTROL	0	25	0	0	0	0	0	0	0
10	EXPERIMENTAL	5	19	0	0	0	0	0	0	1
	CONTROL	3	21	0	0	0	0	0	0	1
11	EXPERIMENTAL	9	16	0	0	0	0	0	0	0
	CONTROL	5	20	0	0	0	0	0	0	0
12	EXPERIMENTAL	2	23	0	0	0	0	0	0	0
	CONTROL	2	22	0	0	0	0	0	0	1
13	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	5	20	0	0	0	0	0	0	0
14	EXPERIMENTAL	7	18	0	0	0	0	0	0	0
	CONTROL	3	21	1	0	0	0	0	0	0
15	EXPERIMENTAL	2	22	1	0	0	0	0	0	0

	CONTROL	4	21	0	0	0	0	0	0	0
16	EXPERIMENTAL	11	14	0	0	0	0	0	0	0
	CONTROL	5	20	0	0	0	0	0	0	0
17	EXPERIMENTAL	2	22	0	0	0	0	0	0	1
	CONTROL	1	23	0	0	0	0	0	0	1
18	EXPERIMENTAL	8	17	0	0	0	0	0	0	0
	CONTROL	2	23	0	0	0	0	0	0	0
19	EXPERIMENTAL	7	18	0	0	0	0	0	0	0
	CONTROL	5	20	0	0	0	0	0	0	0
20	EXPERIMENTAL	5	19	1	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
21	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	4	21	0	0	0	0	0	0	0
22	EXPERIMENTAL	4	21	0	0	0	0	0	0	0
	CONTROL	2	23	0	0	0	0	0	0	0
23	EXPERIMENTAL	2	23	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0
24	EXPERIMENTAL	2	23	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0
25	EXPERIMENTAL	1	22	2	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
26	EXPERIMENTAL	5	19	0	0	0	0	0	0	1
	CONTROL	3	22	0	0	0	0	0	0	0
27	EXPERIMENTAL	4	20	1	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
28	EXPERIMENTAL	7	18	0	0	0	0	0	0	0
	CONTROL	4	21	0	0	0	0	0	0	0
29	EXPERIMENTAL	19	4	1	0	0	0	0	0	1
	CONTROL	20	4	1	0	0	0	0	0	0
30	EXPERIMENTAL	7	18	0	0	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0
31	EXPERIMENTAL	8	17	0	0	0	0	0	0	0
	CONTROL	4	21	0	0	0	0	0	0	0
32	EXPERIMENTAL	2	23	0	0	0	0	0	0	0
	CONTROL	1	22	2	0	0	0	0	0	0
33	EXPERIMENTAL	3	22	0	0	0	0	0	0	0

	CONTROL	2	23	0	0	0	0	0	0	0
34	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	6	19	0	0	0	0	0	0	0
35	EXPERIMENTAL	5	20	0	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
36	EXPERIMENTAL	0	20	5	0	0	0	0	0	0
	CONTROL	0	22	3	0	0	0	0	0	0
37	EXPERIMENTAL	2	19	4	0	0	0	0	0	0
	CONTROL	0	23	2	0	0	0	0	0	0
38	EXPERIMENTAL	1	24	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0
39	EXPERIMENTAL	1	23	1	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
40	EXPERIMENTAL	5	20	0	0	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0
41	EXPERIMENTAL	2	23	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0
42	EXPERIMENTAL	0	25	0	0	0	0	0	0	0
	CONTROL	1	24	0	0	0	0	0	0	0
43	EXPERIMENTAL	4	20	0	0	0	0	0	0	1
	CONTROL	2	23	0	0	0	0	0	0	0
44	EXPERIMENTAL	1	23	1	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0

ITEM SCORING
 FORM 24 9 POINT SOCIAL DESIRABILITY SCALE PM STUDY
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   12 ITEMS WITH AN UPPER RESPONSE LIMIT OF   9
THE FORMAT IS

 (10X,1211)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	0	0	1	2	11	1	3	4	3
	CONTROL	0	0	2	1	7	6	2	1	6
2	EXPERIMENTAL	0	2	1	1	11	2	3	3	2
	CONTROL	0	0	1	5	1	5	5	3	5
3	EXPERIMENTAL	4	1	4	0	4	2	0	6	4
	CONTROL	0	0	2	1	5	3	3	7	4
4	EXPERIMENTAL	2	1	2	3	7	5	2	2	1
	CONTROL	0	0	1	4	3	5	2	6	4
5	EXPERIMENTAL	3	0	4	3	3	4	3	3	2
	CONTROL	0	0	0	3	4	4	3	4	7
6	EXPERIMENTAL	0	1	1	3	3	5	4	3	5
	CONTROL	0	0	0	1	5	2	4	3	10
7	EXPERIMENTAL	1	2	1	4	5	2	4	2	4
	CONTROL	0	0	1	1	5	4	4	4	6
8	EXPERIMENTAL	2	0	2	2	9	0	5	3	2
	CONTROL	0	2	2	2	5	2	4	2	6
9	EXPERIMENTAL	1	0	2	2	7	1	5	5	2
	CONTROL	0	1	0	2	6	5	2	3	6
10	EXPERIMENTAL	2	1	4	3	5	1	5	2	2
	CONTROL	0	1	1	0	5	4	7	4	3
11	EXPERIMENTAL	0	2	1	7	4	6	2	2	1
	CONTROL	0	0	1	3	6	5	4	5	1
12	EXPERIMENTAL	1	4	2	4	0	3	2	2	2
	CONTROL	0	2	4	3	0	4	5	3	2

ITEM SCORING
 FORM 25 PEER NOMINATION PM STUDY
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   30 ITEMS WITH AN UPPER RESPONSE LIMIT OF   14
THE FORMAT IS

(7X,30F2.0)

ITEM		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	EXPERIMENTAL	6	5	4	1	0	2	0	3	0	0	0	0	0	0
	CONTROL	4	6	4	2	3	4	1	0	0	0	0	1	0	0
2	EXPERIMENTAL	6	4	4	2	3	1	1	0	0	0	0	0	0	0
	CONTROL	3	8	4	2	0	0	1	0	0	0	0	0	0	0
3	EXPERIMENTAL	1	1	1	4	1	2	3	2	3	2	3	0	0	2
	CONTROL	0	1	3	3	1	5	3	1	1	3	1	2	1	0
4	EXPERIMENTAL	2	6	1	4	3	3	1	2	0	0	0	0	0	0
	CONTROL	5	5	2	4	3	2	0	1	0	0	0	0	0	0
5	EXPERIMENTAL	7	3	3	4	3	0	1	0	0	0	0	0	0	0
	CONTROL	5	5	4	2	1	1	0	1	0	0	0	0	0	0
6	EXPERIMENTAL	1	0	0	4	7	2	1	4	2	1	2	1	0	0
	CONTROL	0	0	2	4	2	3	2	3	1	3	2	2	0	0
7	EXPERIMENTAL	3	2	8	3	0	0	1	0	2	1	1	0	0	0
	CONTROL	3	3	3	0	4	3	2	4	0	0	0	1	0	0
8	EXPERIMENTAL	8	3	3	1	2	0	0	0	0	0	0	1	0	0
	CONTROL	6	4	3	0	2	0	1	0	0	0	0	0	0	0
9	EXPERIMENTAL	0	1	4	1	4	1	4	3	0	1	3	2	0	1
	CONTROL	1	2	2	3	1	2	4	3	2	2	2	1	0	0
10	EXPERIMENTAL	1	7	4	2	1	2	2	0	0	0	0	1	0	0
	CONTROL	1	6	6	4	5	3	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	7	5	4	3	1	0	2	0	0	0	0	0	0	0
	CONTROL	7	3	4	3	0	1	0	0	0	0	0	0	0	0
12	EXPERIMENTAL	0	2	4	1	2	3	2	1	3	5	0	0	0	2
	CONTROL	0	0	0	2	6	4	5	1	1	4	0	0	1	1
13	EXPERIMENTAL	4	2	6	6	3	3	0	0	0	0	0	0	0	0
	CONTROL	3	3	6	6	3	2	0	0	0	0	0	0	0	0
14	EXPERIMENTAL	4	9	5	2	3	0	0	0	0	0	0	0	0	0
	CONTROL	10	6	2	2	1	1	0	0	0	0	0	0	0	0
15	EXPERIMENTAL	0	0	3	3	1	4	4	3	4	2	0	0	1	0

	CONTROL	0	1	2	1	2	2	3	4	3	5	0	1	1	0
16	EXPERIMENTAL	4	2	7	4	1	2	1	1	1	0	0	0	0	0
	CONTROL	4	4	0	6	3	3	1	2	0	0	0	0	0	0
17	EXPERIMENTAL	8	5	3	3	1	0	1	1	0	0	0	0	0	0
	CONTROL	7	3	3	2	2	0	1	1	0	0	0	0	0	0
18	EXPERIMENTAL	1	1	1	1	7	3	4	0	0	1	4	2	0	0
	CONTROL	0	2	1	2	5	4	2	3	1	0	4	1	0	0
19	EXPERIMENTAL	5	1	2	3	1	2	3	1	1	0	0	0	0	0
	CONTROL	3	5	2	3	1	4	4	1	0	1	0	0	0	0
20	EXPERIMENTAL	5	6	3	3	2	0	1	0	0	1	0	0	0	0
	CONTROL	6	2	4	1	1	0	0	0	0	0	0	0	0	0
21	EXPERIMENTAL	0	2	1	3	4	3	3	2	1	2	3	0	1	0
	CONTROL	1	2	0	2	3	4	1	5	0	3	2	1	0	1
22	EXPERIMENTAL	3	4	5	1	2	5	1	2	0	0	1	0	0	0
	CONTROL	3	1	9	4	3	2	2	0	1	0	0	0	0	0
23	EXPERIMENTAL	8	6	3	1	0	0	1	0	1	0	0	0	0	0
	CONTROL	6	4	5	4	0	0	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	2	0	3	4	3	1	3	0	2	4	2	1	0	0
	CONTROL	0	2	2	0	5	1	1	5	3	1	2	2	0	0
25	EXPERIMENTAL	7	1	6	4	4	1	0	1	0	0	0	0	0	0
	CONTROL	4	7	3	6	2	2	0	1	0	0	0	0	0	0
26	EXPERIMENTAL	5	8	2	6	1	0	1	0	0	0	0	0	0	0
	CONTROL	11	5	3	2	2	0	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	0	1	0	2	6	3	2	4	3	2	1	0	1	0
	CONTROL	0	1	1	1	4	2	3	4	3	1	4	0	0	1
28	EXPERIMENTAL	3	3	7	5	1	1	1	0	1	1	0	0	0	0
	CONTROL	5	0	9	5	3	1	2	0	0	0	0	0	0	0
29	EXPERIMENTAL	7	5	7	1	0	0	1	1	0	0	0	0	0	0
	CONTROL	9	3	4	0	3	0	1	0	0	0	0	0	0	0
30	EXPERIMENTAL	1	1	1	2	4	4	2	3	3	1	1	1	0	1
	CONTROL	0	1	2	1	3	3	3	7	1	1	0	1	2	0

ITEM SCORING
 FORM 26 SPEECH AND HEARING ANALYSIS PM STUDY CARD 1
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   66 ITEMS WITH AN UPPER RESPONSE LIMIT OF   9
THE FORMAT IS

(10X,66I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
2	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
6	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
7	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
8	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
9	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
10	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
12	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
13	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
14	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
15	EXPERIMENTAL	25	0	0	0	0	0	0	0	0

	CONTROL	25	0	0	0	0	0	0	0	0
16	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
17	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
18	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
19	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
20	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
21	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
22	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
23	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
28	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
29	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
30	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
31	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
32	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
33	EXPERIMENTAL	23	2	0	0	0	0	0	0	0

	CONTROL	25	0	0	0	0	0	0	0	0
34	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
35	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
36	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
37	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
38	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
39	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
40	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
41	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
42	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
43	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
44	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
45	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
46	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
47	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
48	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
49	EXPERIMENTAL	15	10	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
50	EXPERIMENTAL	17	8	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
51	EXPERIMENTAL	17	8	0	0	0	0	0	0	0

	CONTROL	24	1	0	0	0	0	0	0	0
52	EXPERIMENTAL	19	6	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
53	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
54	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
55	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
56	EXPERIMENTAL	19	6	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
57	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
58	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
59	EXPERIMENTAL	18	7	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
60	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
61	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
62	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
63	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
64	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
65	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
66	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 26 SPEECH AND HEARING ANALYSIS PM STUDY CARD 2
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   7 ITEMS WITH AN UPPER RESPONSE LIMIT OF   9
THE FORMAT IS

(10X,7I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
2	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
4	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
5	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
6	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
7	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0

ITEM SCORING
 FORM 26 SPEECH AND HEARING ANALYSIS PM STUDY CARD 3
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 31 ITEMS WITH AN UPPER RESPONSE LIMIT OF 9
THE FORMAT IS

(10X,20I1,3X,2I3,3X,I2,I3,7I2)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
2	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
5	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
6	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
7	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
8	EXPERIMENTAL	18	7	0	0	0	0	0	0	0
	CONTROL	18	7	0	0	0	0	0	0	0
9	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
10	EXPERIMENTAL	17	8	0	0	0	0	0	0	0
	CONTROL	18	7	0	0	0	0	0	0	0
11	EXPERIMENTAL	19	6	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
12	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
13	EXPERIMENTAL	15	10	0	0	0	0	0	0	0
	CONTROL	14	11	0	0	0	0	0	0	0
14	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	17	8	0	0	0	0	0	0	0
15	EXPERIMENTAL	7	18	0	0	0	0	0	0	0

	CONTROL	11	14	0	0	0	0	0	0	0
16	EXPERIMENTAL	18	7	0	0	0	0	0	0	0
	CONTROL	18	7	0	0	0	0	0	0	0
17	EXPERIMENTAL	5	20	0	0	0	0	0	0	0
	CONTROL	7	18	0	0	0	0	0	0	0
18	EXPERIMENTAL	8	17	0	0	0	0	0	0	0
	CONTROL	15	10	0	0	0	0	0	0	0
19	EXPERIMENTAL	9	16	0	0	0	0	0	0	0
	CONTROL	8	17	0	0	0	0	0	0	0
20	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
21	EXPERIMENTAL	11	6	8	0	0	0	0	0	0
	CONTROL	11	6	8	0	0	0	0	0	0
22	EXPERIMENTAL	15	2	7	1	0	0	0	0	0
	CONTROL	12	3	7	1	1	1	0	0	0
23	EXPERIMENTAL	0	1	4	8	0	9	3	0	0
	CONTROL	0	1	4	7	3	7	3	0	0
24	EXPERIMENTAL	0	0	1	2	3	2	1	2	1
	CONTROL	0	0	0	3	0	4	2	2	4
25	EXPERIMENTAL	3	0	0	0	0	0	0	0	0
	CONTROL	1	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	8	2	5	0	1	1	0	0	0
	CONTROL	6	5	1	0	0	0	0	0	0
27	EXPERIMENTAL	8	3	0	0	0	0	0	0	0
	CONTROL	8	5	2	1	0	0	0	0	0
28	EXPERIMENTAL	1	0	0	0	0	0	0	0	0
	CONTROL	4	0	0	0	0	0	0	0	0
29	EXPERIMENTAL	6	0	0	0	0	0	0	0	0
	CONTROL	5	1	0	0	0	0	0	0	0
30	EXPERIMENTAL	5	2	0	1	0	0	0	0	0
	CONTROL	3	1	0	1	0	0	0	0	0
31	EXPERIMENTAL	1	4	3	2	2	0	0	0	1
	CONTROL	0	3	1	1	0	1	0	2	0

ITEM SCORING
FORM 26 SPEECH AND HEARING ANALYSIS PM STUDY CARD 4
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 60 ITEMS WITH AN UPPER RESPONSE LIMIT OF 9
THE FORMAT IS

(10X,60I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
2	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
3	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
5	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
6	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
7	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
8	EXPERIMENTAL	13	12	0	0	0	0	0	0	0
	CONTROL	15	10	0	0	0	0	0	0	0
9	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
10	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
12	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
13	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
14	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
15	EXPERIMENTAL	22	3	0	0	0	0	0	0	0

	CONTROL	25	0	0	0	0	0	0	0	0
16	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
17	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
18	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
19	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
20	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
21	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
22	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
23	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
24	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
28	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
29	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
30	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
31	EXPERIMENTAL	12	13	0	0	0	0	0	0	0
	CONTROL	10	15	0	0	0	0	0	0	0
32	EXPERIMENTAL	2	23	0	0	0	0	0	0	0
	CONTROL	3	22	0	0	0	0	0	0	0
33	EXPERIMENTAL	10	15	0	0	0	0	0	0	0

	CONTROL	11	14	0	0	0	0	0	0	0
34	EXPERIMENTAL	9	16	0	0	0	0	0	0	0
	CONTROL	5	20	0	0	0	0	0	0	0
35	EXPERIMENTAL	11	14	0	0	0	0	0	0	0
	CONTROL	16	9	0	0	0	0	0	0	0
36	EXPERIMENTAL	12	13	0	0	0	0	0	0	0
	CONTROL	13	12	0	0	0	0	0	0	0
37	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	15	10	0	0	0	0	0	0	0
38	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
39	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
40	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
41	EXPERIMENTAL	6	19	0	0	0	0	0	0	0
	CONTROL	5	20	0	0	0	0	0	0	0
42	EXPERIMENTAL	18	7	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
43	EXPERIMENTAL	19	6	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
44	EXPERIMENTAL	15	10	0	0	0	0	0	0	0
	CONTROL	17	8	0	0	0	0	0	0	0
45	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	7	18	0	0	0	0	0	0	0
46	EXPERIMENTAL	11	14	0	0	0	0	0	0	0
	CONTROL	17	8	0	0	0	0	0	0	0
47	EXPERIMENTAL	8	17	0	0	0	0	0	0	0
	CONTROL	7	18	0	0	0	0	0	0	0
48	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
49	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
50	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	17	8	0	0	0	0	0	0	0
51	EXPERIMENTAL	14	11	0	0	0	0	0	0	0

	CONTROL	17	8	0	0	0	0	0	0	0
52	EXPERIMENTAL	17	8	0	0	0	0	0	0	0
	CONTROL	14	11	0	0	0	0	0	0	0
53	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	16	9	0	0	0	0	0	0	0
54	EXPERIMENTAL	13	12	0	0	0	0	0	0	0
	CONTROL	7	18	0	0	0	0	0	0	0
55	EXPERIMENTAL	10	15	0	0	0	0	0	0	0
	CONTROL	10	15	0	0	0	0	0	0	0
56	EXPERIMENTAL	11	14	0	0	0	0	0	0	0
	CONTROL	13	12	0	0	0	0	0	0	0
57	EXPERIMENTAL	22	3	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
58	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	21	4	0	0	0	0	0	0	0
59	EXPERIMENTAL	18	7	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
60	EXPERIMENTAL	11	14	0	0	0	0	0	0	0
	CONTROL	14	11	0	0	0	0	0	0	0

ITEM SCORING
FORM 26 SPEECH AND HEARING ANALYSIS PM STUDY CARD 5
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 10 ITEMS WITH AN UPPER RESPONSE LIMIT OF 9
THE FORMAT IS

(10X,10I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	11	1	0	0	0	0	0	0	0
	CONTROL	6	0	0	0	0	0	0	0	0
2	EXPERIMENTAL	5	0	4	0	1	0	0	0	0
	CONTROL	4	3	0	0	0	0	0	0	0
3	EXPERIMENTAL	13	2	0	1	0	0	0	0	0
	CONTROL	13	1	0	0	0	0	0	0	0
4	EXPERIMENTAL	0	2	0	0	0	0	0	0	0
	CONTROL	1	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	12	2	1	1	0	0	0	0	0
	CONTROL	6	5	0	0	0	0	0	0	0
6	EXPERIMENTAL	5	8	6	1	2	0	0	0	0
	CONTROL	7	9	5	1	0	0	0	0	0
7	EXPERIMENTAL	2	8	7	2	3	0	0	0	0
	CONTROL	10	7	3	4	0	0	0	0	0
8	EXPERIMENTAL	0	5	7	9	4	0	0	0	0
	CONTROL	0	3	10	7	4	1	0	0	0
9	EXPERIMENTAL	10	6	4	1	0	0	0	0	0
	CONTROL	9	7	2	1	1	0	0	0	0
10	EXPERIMENTAL	2	4	8	5	4	2	0	0	0
	CONTROL	0	7	10	6	2	0	0	0	0

ITEM SCORING
FORM 31 MEDICAL EXAMINATION PEDIATRIC PM STUDY
GROUP 1 EXPERIMENTAL HAS 25 SUBJECTS
GROUP 2 CONTROL HAS 25 SUBJECTS
FORM HAS 43 ITEMS WITH AN UPPER RESPONSE LIMIT OF 9
THE FORMAT IS

(16X,43I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	12	6	4	3	0	0	0	0	0
	CONTROL	13	7	3	2	0	0	0	0	0
2	EXPERIMENTAL	19	6	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
3	EXPERIMENTAL	20	3	1	1	0	0	0	0	0
	CONTROL	23	1	0	1	0	0	0	0	0
4	EXPERIMENTAL	8	5	1	1	1	0	2	0	1
	CONTROL	7	3	2	1	1	0	0	1	0
5	EXPERIMENTAL	10	3	0	0	0	0	0	0	0
	CONTROL	10	5	2	0	0	0	0	0	0
6	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0
7	EXPERIMENTAL	23	1	1	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
8	EXPERIMENTAL	21	1	2	1	0	0	0	0	0
	CONTROL	18	4	3	0	0	0	0	0	0
9	EXPERIMENTAL	0	1	20	4	0	0	0	0	0
	CONTROL	0	2	21	2	0	0	0	0	0
10	EXPERIMENTAL	21	1	0	0	3	0	0	0	0
	CONTROL	22	0	1	1	1	0	0	0	0
11	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	21	2	2	0	0	0	0	0	0
12	EXPERIMENTAL	11	6	2	2	0	0	0	0	4
	CONTROL	9	11	0	0	0	0	0	0	5
13	EXPERIMENTAL	10	11	1	0	0	0	0	0	3
	CONTROL	8	16	0	0	0	0	0	0	1
14	EXPERIMENTAL	10	11	3	1	0	0	0	0	0
	CONTROL	7	16	2	0	0	0	0	0	0
15	EXPERIMENTAL	1	10	2	0	3	0	0	0	9

	CONTROL	2	17	1	0	0	0	0	0	5
16	EXPERIMENTAL	23	0	0	1	0	1	0	0	0
	CONTROL	23	1	0	0	0	1	0	0	0
17	EXPERIMENTAL	10	1	10	0	0	0	0	0	4
	CONTROL	10	0	13	0	0	0	0	0	2
18	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	20	2	0	0	0	0	0	0	3
19	EXPERIMENTAL	15	0	9	0	0	0	0	0	1
	CONTROL	19	0	5	0	0	0	0	0	1
20	EXPERIMENTAL	2	0	14	8	0	0	0	0	1
	CONTROL	3	0	14	8	0	0	0	0	0
21	EXPERIMENTAL	11	13	0	0	0	0	0	0	1
	CONTROL	10	15	0	0	0	0	0	0	0
22	EXPERIMENTAL	19	1	0	0	0	1	1	3	0
	CONTROL	16	3	0	0	0	2	2	2	0
23	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	21	0	0	0	0	0	1	2	1
	CONTROL	21	0	0	0	0	1	2	0	1
25	EXPERIMENTAL	17	7	0	0	0	0	0	0	1
	CONTROL	15	9	1	0	0	0	0	0	0
26	EXPERIMENTAL	16	9	0	0	0	0	0	0	0
	CONTROL	19	6	0	0	0	0	0	0	0
27	EXPERIMENTAL	6	17	1	0	0	0	0	0	1
	CONTROL	5	17	0	0	0	0	0	0	3
28	EXPERIMENTAL	18	7	0	0	0	0	0	0	0
	CONTROL	19	5	0	0	0	0	0	0	1
29	EXPERIMENTAL	24	0	0	0	0	0	0	0	1
	CONTROL	24	0	0	0	0	0	0	0	1
30	EXPERIMENTAL	21	4	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
31	EXPERIMENTAL	16	4	0	3	2	0	0	0	0
	CONTROL	16	5	0	0	2	1	1	0	0
32	EXPERIMENTAL	3	0	0	0	0	0	0	0	0
	CONTROL	3	0	0	0	0	0	0	0	0
33	EXPERIMENTAL	16	0	2	3	1	3	0	0	0

	CONTROL	16	2	4	2	1	0	0	0	0
34	EXPERIMENTAL	21	2	0	2	0	0	0	0	0
	CONTROL	17	5	0	3	0	0	0	0	0
35	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
36	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
37	EXPERIMENTAL	20	0	5	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
38	EXPERIMENTAL	22	0	2	1	0	0	0	0	0
	CONTROL	20	0	1	4	0	0	0	0	0
39	EXPERIMENTAL	2	0	0	0	0	0	0	0	0
	CONTROL	4	0	0	0	0	0	0	0	0
40	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
41	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
42	EXPERIMENTAL	22	1	0	0	0	0	0	0	1
	CONTROL	21	4	0	0	0	0	0	0	0
43	EXPERIMENTAL	1	0	0	0	0	0	0	0	1
	CONTROL	4	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 31 CARD 2 MEDICAL EXAMINATION PEDIATRIC PM STUDY
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   52 ITEMS WITH AN UPPER RESPONSE LIMIT OF   9
THE FORMAT IS

(17X,I1,2X,51I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	2	4	4	1	6	6	2	0	0
	CONTROL	0	5	2	10	4	3	1	0	0
2	EXPERIMENTAL	0	0	0	0	0	0	0	0	25
	CONTROL	0	0	0	0	0	0	0	0	25
3	EXPERIMENTAL	0	24	0	0	0	0	0	0	1
	CONTROL	0	25	0	0	0	0	0	0	0
4	EXPERIMENTAL	0	0	0	0	0	0	0	0	1
	CONTROL	0	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	22	0	0	0	0	0	3	0	0
	CONTROL	24	0	0	0	0	0	1	0	0
6	EXPERIMENTAL	3	0	0	0	0	0	0	0	0
	CONTROL	1	0	0	0	0	0	0	0	0
7	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
8	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
9	EXPERIMENTAL	21	2	0	2	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
10	EXPERIMENTAL	1	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
11	EXPERIMENTAL	22	0	3	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
12	EXPERIMENTAL	3	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
13	EXPERIMENTAL	24	0	1	0	0	0	0	0	0
	CONTROL	23	1	1	0	0	0	0	0	0
14	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
15	EXPERIMENTAL	24	0	1	0	0	0	0	0	0

	CONTROL	25	0	0	0	0	0	0	0	0
16	EXPERIMENTAL	1	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
17	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
18	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
19	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
20	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
21	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
22	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
23	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	1	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
28	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
29	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
30	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
31	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0
32	EXPERIMENTAL	1	0	0	0	0	0	0	0	0
	CONTROL	2	0	0	0	0	0	0	0	0
33	EXPERIMENTAL	25	0	0	0	0	0	0	0	0

	CONTROL	24	1	0	0	0	0	0	0	0
34	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
35	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
36	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
37	EXPERIMENTAL	0	25	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0
38	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
39	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
40	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
41	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
42	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
43	EXPERIMENTAL	24	0	0	0	0	0	0	0	1
	CONTROL	24	0	0	0	0	0	0	0	1
44	EXPERIMENTAL	0	0	0	0	0	0	0	0	1
	CONTROL	0	0	0	0	0	0	0	0	1
45	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
46	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
47	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
48	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
49	EXPERIMENTAL	0	0	0	0	0	0	0	0	0
	CONTROL	0	0	0	0	0	0	0	0	0
50	EXPERIMENTAL	24	1	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
51	EXPERIMENTAL	1	0	0	0	0	0	0	0	0

	CONTROL	0	0	0	0	0	0	0	0	0
52	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 32 MEDICAL EXAMINATION NEUROLOGICAL PM STUDY
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   58 ITEMS WITH AN UPPER RESPONSE LIMIT OF   9
THE FORMAT IS

(10X,36I1,6X,22I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	1	0	7	3	14	0	0	0	0
	CONTROL	0	0	1	4	20	0	0	0	0
2	EXPERIMENTAL	0	1	5	7	12	0	0	0	0
	CONTROL	0	0	1	3	21	0	0	0	0
3	EXPERIMENTAL	0	4	4	9	8	0	0	0	0
	CONTROL	2	2	3	7	11	0	0	0	0
4	EXPERIMENTAL	4	0	3	1	17	0	0	0	0
	CONTROL	0	2	1	3	19	0	0	0	0
5	EXPERIMENTAL	0	5	3	5	12	0	0	0	0
	CONTROL	0	0	3	4	18	0	0	0	0
6	EXPERIMENTAL	0	1	5	4	15	0	0	0	0
	CONTROL	0	0	4	2	19	0	0	0	0
7	EXPERIMENTAL	0	0	1	7	17	0	0	0	0
	CONTROL	0	0	5	8	12	0	0	0	0
8	EXPERIMENTAL	0	0	0	0	25	0	0	0	0
	CONTROL	0	0	0	0	25	0	0	0	0
9	EXPERIMENTAL	0	0	0	0	25	0	0	0	0
	CONTROL	0	0	1	1	23	0	0	0	0
10	EXPERIMENTAL	0	1	2	12	9	0	0	0	1
	CONTROL	0	0	0	11	14	0	0	0	0
11	EXPERIMENTAL	0	0	1	5	19	0	0	0	0
	CONTROL	0	0	1	1	23	0	0	0	0
12	EXPERIMENTAL	0	3	0	0	22	0	0	0	0
	CONTROL	0	0	1	2	22	0	0	0	0
13	EXPERIMENTAL	0	2	0	1	22	0	0	0	0
	CONTROL	0	2	2	0	21	0	0	0	0
14	EXPERIMENTAL	0	0	2	2	21	0	0	0	0
	CONTROL	0	0	0	1	24	0	0	0	0
15	EXPERIMENTAL	0	0	0	1	24	0	0	0	0

	CONTROL	0	0	0	0	25	0	0	0	0
16	EXPERIMENTAL	0	0	0	4	21	0	0	0	0
	CONTROL	0	0	0	0	25	0	0	0	0
17	EXPERIMENTAL	1	7	3	5	9	0	0	0	0
	CONTROL	0	1	6	3	15	0	0	0	0
18	EXPERIMENTAL	0	0	1	3	21	0	0	0	0
	CONTROL	0	1	2	2	20	0	0	0	0
19	EXPERIMENTAL	0	1	0	3	21	0	0	0	0
	CONTROL	0	0	1	1	23	0	0	0	0
20	EXPERIMENTAL	0	2	3	6	14	0	0	0	0
	CONTROL	0	0	1	7	17	0	0	0	0
21	EXPERIMENTAL	0	0	0	0	25	0	0	0	0
	CONTROL	0	0	0	0	25	0	0	0	0
22	EXPERIMENTAL	0	0	5	3	17	0	0	0	0
	CONTROL	0	0	2	7	16	0	0	0	0
23	EXPERIMENTAL	0	1	6	6	12	0	0	0	0
	CONTROL	0	1	4	4	16	0	0	0	0
24	EXPERIMENTAL	0	1	0	2	22	0	0	0	0
	CONTROL	0	0	1	4	20	0	0	0	0
25	EXPERIMENTAL	1	7	6	7	4	0	0	0	0
	CONTROL	0	5	6	7	7	0	0	0	0
26	EXPERIMENTAL	1	8	8	2	6	0	0	0	0
	CONTROL	0	5	8	4	8	0	0	0	0
27	EXPERIMENTAL	0	0	2	6	17	0	0	0	0
	CONTROL	0	0	7	4	14	0	0	0	0
28	EXPERIMENTAL	1	3	0	5	16	0	0	0	0
	CONTROL	0	1	3	5	16	0	0	0	0
29	EXPERIMENTAL	1	5	5	4	10	0	0	0	0
	CONTROL	1	0	2	7	15	0	0	0	0
30	EXPERIMENTAL	0	1	4	5	15	0	0	0	0
	CONTROL	0	0	6	4	15	0	0	0	0
31	EXPERIMENTAL	0	0	0	1	24	0	0	0	0
	CONTROL	0	0	0	1	24	0	0	0	0
32	EXPERIMENTAL	0	0	0	0	25	0	0	0	0
	CONTROL	0	0	0	1	24	0	0	0	0
33	EXPERIMENTAL	0	0	0	0	25	0	0	0	0

	CONTROL	0	0	0	1	24	0	0	0	0
34	EXPERIMENTAL	0	0	1	2	22	0	0	0	0
	CONTROL	0	0	1	2	22	0	0	0	0
35	EXPERIMENTAL	0	0	1	1	23	0	0	0	0
	CONTROL	0	0	0	1	24	0	0	0	0
36	EXPERIMENTAL	0	0	0	0	4	0	0	0	21
	CONTROL	0	0	0	0	2	0	0	0	23
37	EXPERIMENTAL	3	3	4	2	13	0	0	0	0
	CONTROL	3	1	1	2	18	0	0	0	0
38	EXPERIMENTAL	2	8	4	0	11	0	0	0	0
	CONTROL	3	1	5	2	14	0	0	0	0
39	EXPERIMENTAL	4	2	2	1	16	0	0	0	0
	CONTROL	3	0	1	1	20	0	0	0	0
40	EXPERIMENTAL	16	3	6	0	0	0	0	0	0
	CONTROL	14	8	3	0	0	0	0	0	0
41	EXPERIMENTAL	18	3	4	0	0	0	0	0	0
	CONTROL	19	3	3	0	0	0	0	0	0
42	EXPERIMENTAL	15	10	0	0	0	0	0	0	0
	CONTROL	15	9	1	0	0	0	0	0	0
43	EXPERIMENTAL	0	1	5	5	14	0	0	0	0
	CONTROL	0	1	1	4	19	0	0	0	0
44	EXPERIMENTAL	2	10	13	0	0	0	0	0	0
	CONTROL	4	3	18	0	0	0	0	0	0
45	EXPERIMENTAL	4	2	5	1	13	0	0	0	0
	CONTROL	3	1	4	2	15	0	0	0	0
46	EXPERIMENTAL	4	1	3	2	15	0	0	0	0
	CONTROL	0	1	3	1	20	0	0	0	0
47	EXPERIMENTAL	1	4	0	0	20	0	0	0	0
	CONTROL	0	0	1	1	23	0	0	0	0
48	EXPERIMENTAL	1	3	5	7	9	0	0	0	0
	CONTROL	2	2	3	9	9	0	0	0	0
49	EXPERIMENTAL	4	4	2	5	10	0	0	0	0
	CONTROL	1	2	4	5	13	0	0	0	0
50	EXPERIMENTAL	1	0	0	0	24	0	0	0	0
	CONTROL	0	0	0	0	25	0	0	0	0
51	EXPERIMENTAL	0	0	0	0	25	0	0	0	0

	CONTROL	0	0	0	0	25	0	0	0	0
52	EXPERIMENTAL	0	0	0	0	25	0	0	0	0
	CONTROL	0	0	0	0	25	0	0	0	0
53	EXPERIMENTAL	0	0	0	0	23	0	0	0	2
	CONTROL	0	0	0	0	24	0	0	0	1
54	EXPERIMENTAL	0	0	0	0	23	0	0	0	2
	CONTROL	0	0	0	0	24	0	0	0	1
55	EXPERIMENTAL	0	2	1	4	18	0	0	0	0
	CONTROL	0	0	1	4	20	0	0	0	0
56	EXPERIMENTAL	0	1	0	2	22	0	0	0	0
	CONTROL	0	0	1	0	24	0	0	0	0
57	EXPERIMENTAL	1	7	5	3	9	0	0	0	0
	CONTROL	0	4	5	2	14	0	0	0	0
58	EXPERIMENTAL	2	4	3	7	9	0	0	0	0
	CONTROL	0	5	2	4	14	0	0	0	0

ITEM SCORING
 FORM 33 PSYCHIATRIC EVALUATION PM STUDY
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   29 ITEMS WITH AN UPPER RESPONSE LIMIT OF   14
THE FORMAT IS

 (21X,26I1,I2,2I1)

ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 EXPERIMENTAL	0	0	6	19	0	0	0	0	0	0	0	0	0	0
CONTROL	0	0	5	20	0	0	0	0	0	0	0	0	0	0
2 EXPERIMENTAL	0	25	0	0	0	0	0	0	0	0	0	0	0	0
CONTROL	1	24	0	0	0	0	0	0	0	0	0	0	0	0
3 EXPERIMENTAL	21	4	0	0	0	0	0	0	0	0	0	0	0	0
CONTROL	22	3	0	0	0	0	0	0	0	0	0	0	0	0
4 EXPERIMENTAL	6	1	18	0	0	0	0	0	0	0	0	0	0	0
CONTROL	4	1	20	0	0	0	0	0	0	0	0	0	0	0
5 EXPERIMENTAL	0	7	18	0	0	0	0	0	0	0	0	0	0	0
CONTROL	0	0	25	0	0	0	0	0	0	0	0	0	0	0
6 EXPERIMENTAL	0	7	18	0	0	0	0	0	0	0	0	0	0	0
CONTROL	0	0	25	0	0	0	0	0	0	0	0	0	0	0
7 EXPERIMENTAL	6	0	19	0	0	0	0	0	0	0	0	0	0	0
CONTROL	6	0	19	0	0	0	0	0	0	0	0	0	0	0
8 EXPERIMENTAL	1	0	1	23	0	0	0	0	0	0	0	0	0	0
CONTROL	0	0	1	24	0	0	0	0	0	0	0	0	0	0
9 EXPERIMENTAL	1	3	21	0	0	0	0	0	0	0	0	0	0	0
CONTROL	0	0	25	0	0	0	0	0	0	0	0	0	0	0
10 EXPERIMENTAL	0	0	25	0	0	0	0	0	0	0	0	0	0	0
CONTROL	0	1	24	0	0	0	0	0	0	0	0	0	0	0
11 EXPERIMENTAL	21	1	0	2	0	0	0	1	0	0	0	0	0	0
CONTROL	22	0	0	0	1	1	0	1	0	0	0	0	0	0
12 EXPERIMENTAL	3	0	22	0	0	0	0	0	0	0	0	0	0	0
CONTROL	2	3	20	0	0	0	0	0	0	0	0	0	0	0
13 EXPERIMENTAL	0	7	18	0	0	0	0	0	0	0	0	0	0	0
CONTROL	1	7	17	0	0	0	0	0	0	0	0	0	0	0
14 EXPERIMENTAL	0	6	19	0	0	0	0	0	0	0	0	0	0	0
CONTROL	1	0	24	0	0	0	0	0	0	0	0	0	0	0
15 EXPERIMENTAL	18	7	0	0	0	0	0	0	0	0	0	0	0	0

	CONTROL	22	3	0	0	0	0	0	0	0	0	0	0	0	0
16	EXPERIMENTAL	0	3	21	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	1	24	0	0	0	0	0	0	0	0	0	0	0
17	EXPERIMENTAL	3	18	4	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	24	1	0	0	0	0	0	0	0	0	0	0	0
18	EXPERIMENTAL	0	2	4	19	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	1	4	20	0	0	0	0	0	0	0	0	0	0
19	EXPERIMENTAL	23	2	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
20	EXPERIMENTAL	3	0	22	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	2	0	23	0	0	0	0	0	0	0	0	0	0	0
21	EXPERIMENTAL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
22	EXPERIMENTAL	21	4	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
23	EXPERIMENTAL	24	0	0	1	0	0	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0	0	0	0	0	0
24	EXPERIMENTAL	0	25	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0	0	0	0	0	0
25	EXPERIMENTAL	0	25	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0	0	0	0	0	0
26	EXPERIMENTAL	8	17	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	7	18	0	0	0	0	0	0	0	0	0	0	0	0
27	EXPERIMENTAL	17	5	2	0	0	0	0	0	0	0	1	0	0	0
	CONTROL	18	1	0	0	1	0	0	0	1	0	4	0	0	0
28	EXPERIMENTAL	22	3	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	22	3	0	0	0	0	0	0	0	0	0	0	0	0
29	EXPERIMENTAL	18	7	0	0	0	0	0	0	0	0	0	0	0	0
	CONTROL	23	2	0	0	0	0	0	0	0	0	0	0	0	0

ITEM SCORING
 FORM 34 VISUAL PM STUDY
GROUP 1 EXPERIMENTAL HAS   25 SUBJECTS
GROUP 2 CONTROL   HAS   25 SUBJECTS
FORM HAS   13 ITEMS WITH AN UPPER RESPONSE LIMIT OF   9
THE FORMAT IS

(7X,13I1)

ITEM		1	2	3	4	5	6	7	8	9
1	EXPERIMENTAL	4	21	0	0	0	0	0	0	0
	CONTROL	0	25	0	0	0	0	0	0	0
2	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
3	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
4	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
5	EXPERIMENTAL	24	0	1	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
6	EXPERIMENTAL	10	4	0	10	0	0	0	0	1
	CONTROL	12	0	0	13	0	0	0	0	0
7	EXPERIMENTAL	11	4	0	9	0	0	0	0	1
	CONTROL	9	2	0	14	0	0	0	0	0
8	EXPERIMENTAL	20	5	0	0	0	0	0	0	0
	CONTROL	20	5	0	0	0	0	0	0	0
9	EXPERIMENTAL	25	0	0	0	0	0	0	0	0
	CONTROL	25	0	0	0	0	0	0	0	0
10	EXPERIMENTAL	23	2	0	0	0	0	0	0	0
	CONTROL	24	1	0	0	0	0	0	0	0
11	EXPERIMENTAL	19	3	0	3	0	0	0	0	0
	CONTROL	17	2	0	6	0	0	0	0	0
12	EXPERIMENTAL	20	1	0	4	0	0	0	0	0
	CONTROL	22	0	0	3	0	0	0	0	0
13	EXPERIMENTAL	18	2	0	5	0	0	0	0	0
	CONTROL	13	1	0	11	0	0	0	0	0

APPENDIX D

MEANS, STANDARD DEVIATIONS, AND "t" TEST RESULTS FOR VARIABLES WITH CONTINUOUS DISTRIBUTIONS

FORM 22 CARD 1 SCHOOL ADJUSTMENT AND PSYCHOLOGICAL

ITEM	EXPER MEAN	STANDARD DEVIATION	CONTROL MEAN	STANDARD DEVIATION	T-TEST	PROB
1	200.52	125.54	290.80	115.07	2.650	0.010
2	281.24	118.74	333.60	71.27	1.890	0.061
3	307.04	99.09	343.00	95.90	1.303	0.195
4	223.36	123.43	315.44	90.87	3.003	0.004
5	314.60	113.70	369.36	69.28	2.056	0.042
6	205.36	68.01	243.60	62.77	2.065	0.041
7	266.72	125.10	321.20	112.21	1.620	0.107
8	262.76	97.09	334.16	59.17	3.139	0.003
9	325.20	96.91	377.84	118.37	1.720	0.088
10	225.48	116.89	327.00	118.04	3.055	0.003
11	80.16	17.47	82.72	14.64	0.561	0.583
12	73.64	14.16	75.16	13.79	0.384	0.704
13	64.00	16.76	70.72	17.48	1.387	0.168
14	69.12	14.89	77.44	11.79	2.189	0.031
15	76.52	11.65	79.36	3.56	1.165	0.248
16	92.36	22.22	101.84	15.70	1.742	0.084
17	35.92	34.75	53.16	28.80	1.909	0.059
18	83.72	13.93	89.64	12.80	1.564	0.120
19	90.96	21.23	102.60	17.00	2.139	0.035

FORM 22 CARD 2 SCHOOL ADJUSTMENT AND PSYCHOLOGICAL

ITEM	EXPER MEAN	STANDARD DEVIATION	CONTROL MEAN	STANDARD DEVIATION	T-TEST	PROB
1	21.52	4.79	22.36	4.15	0.662	0.518
2	19.96	3.70	21.16	3.99	1.101	0.275
3	61.44	11.18	61.24	12.48	0.059	0.951
4	55.92	10.77	57.48	10.53	0.517	0.613
5	104.84	4.40	103.16	5.63	1.173	0.244
6	84.32	33.28	78.04	13.56	0.873	0.609
7	98.76	52.38	85.96	15.45	1.171	0.245
8	1.48	0.50	1.44	0.50	0.278	0.778
9	12.84	3.61	12.72	3.70	0.115	0.904
10	11.16	3.96	12.92	3.40	1.684	0.094
11	85.76	44.61	78.76	41.11	0.576	0.573
12	23.48	5.04	24.96	4.62	1.081	0.284
13	912.48	314.44	1112.48	132.50	2.930	0.005
14	864.60	371.29	1060.48	167.85	2.403	0.019
15	4.72	1.27	4.36	1.25	1.006	0.320
16	2.44	1.75	2.24	1.71	0.407	0.688
17	1.64	1.60	1.28	1.27	0.878	0.611
18	8.80	4.01	7.88	3.73	0.839	0.589
19	23.20	5.37	22.20	3.60	0.772	0.550
20	21.20	4.96	21.56	3.64	0.292	0.768
21	21.48	7.24	20.12	5.88	0.728	0.523
22	22.40	5.59	21.96	4.02	0.319	0.749
23	24.04	4.98	22.64	3.97	1.097	0.277
24	19.56	4.61	20.32	2.70	0.710	0.512
25	23.36	4.01	21.40	3.53	1.830	0.069

FORM 24 9 POINT SOCIAL DESIRABILITY SCALE PM STUDY

ITEM	EXPER MEAN	STANDARD DEVIATION	CONTROL MEAN	STANDARD DEVIATION	T-TEST	PROB
1	6.08	1.75	6.28	1.90	0.386	0.702
2	5.64	1.89	6.48	1.89	1.568	0.119
3	5.36	2.92	6.64	1.86	1.842	0.068
4	5.04	2.03	6.48	1.87	2.606	0.011
5	5.16	2.42	6.88	1.81	2.840	0.006
6	6.36	2.01	7.32	1.72	1.807	0.073
7	5.64	2.34	6.80	1.77	1.971	0.051
8	5.52	2.18	6.12	2.31	0.943	0.647
9	5.96	2.05	6.48	1.96	0.916	0.632
10	5.12	2.33	6.48	1.75	2.327	0.022
11	55.88	17.42	65.96	14.75	2.206	0.030

FORM 25 PEER NOMINATION PM STUDY

ITEM	EXPER MEAN	STANDARD DEVIATION	CONTROL MEAN	STANDARD DEVIATION	T-TEST	PROB
1	2.72	2.55	3.76	2.53	1.443	0.151
2	2.48	2.00	1.84	1.67	1.225	0.224
3	7.36	3.49	6.96	3.18	0.422	0.677
4	3.56	2.43	2.88	2.14	1.047	0.300
5	2.40	1.93	2.16	2.05	0.424	0.676
6	6.60	2.70	7.52	3.24	1.088	0.281
7	3.56	3.20	4.56	3.08	1.124	0.265
8	1.96	2.58	1.60	1.87	0.563	0.582
9	7.08	3.37	6.56	3.11	0.566	0.580
10	3.12	2.83	3.60	1.47	0.751	0.537
11	2.40	1.93	1.72	1.64	1.337	0.184
12	7.00	3.47	7.24	2.66	0.273	0.781
13	3.32	1.70	3.12	1.69	0.416	0.681
14	2.40	1.41	1.88	1.53	1.245	0.216
15	6.84	2.54	7.56	2.81	0.948	0.650
16	3.44	2.36	3.68	2.39	0.356	0.723
17	2.36	2.05	2.20	2.23	0.263	0.789
18	6.76	3.15	6.68	2.89	0.093	0.923
19	3.20	2.94	4.24	2.65	1.312	0.192
20	2.60	2.36	1.24	1.47	2.438	0.017
21	6.76	3.01	7.08	3.27	0.359	0.721
22	4.16	2.70	3.92	1.97	0.358	0.722
23	1.96	2.13	1.80	1.44	0.310	0.755
24	6.44	3.30	6.84	3.28	0.429	0.673
25	3.08	1.95	3.24	1.80	0.300	0.762
26	2.52	1.66	1.92	1.41	1.376	0.171
27	7.00	2.54	7.56	2.87	0.728	0.523
28	3.48	2.46	3.48	1.73	0.000	1.000
29	2.28	1.92	1.96	1.88	0.594	0.562
30	6.80	3.08	7.16	2.86	0.427	0.674

FORM 26 CARD III SPEECH AND HEARING ANALYSIS
RELATED "t" TESTS FOR READING

ITEM	EXPER MEAN	CONTROL MEAN	T-TEST	PROB.
PARA.	1.760	2.160	1.789	.0829
TIME	49.880	35.160	1.541	.1329
CORR.	4.840	4.800	.171	.8601
VERT.	8.680	9.360	.782	.5524
OMIS.	.120	.040	1.000	.6717
MISPRO.	1.520	.760	1.956	.0593
REP.	.560	1.120	2.281	.0300
ADD.	.040	.160	1.809	.0797
HES.	.240	.280	.296	.7669
IGNOR.	.520	.360	.659	.5227
E.PRO.	4.560	2.040	1.230	.2288

FORM 26 CARD III (COL.31-33), CARD IV (COL.71-74),
CARD V (COL.11-20) APEECH AND HEARING ANALYSIS

ITEM	EXPER MEAN	STANDARD DEVIATION	CONTROL MEAN	STANDARD DEVIATION	T-TEST	PROB.
VIS.MEM. SCORE	13.640	3.978	15.120	3.456	1.404	.1633
TOT.-Q	3.320	3.119	1.880	1.453	2.093	.0393
TOT.-N	13.040	3.857	11.960	3.297	1.064	.2927
VP-Q	.520	.586	.240	.436	1.917	.0581
VLP-Q	.880	1.394	.400	.707	1.535	.1275
VC-Q	.840	.898	.600	.577	1.124	.2658
VLC-Q	.160	.554	.040	.200	1.019	.3143
NASAL-Q	.920	.997	.640	.810	1.090	.2809
VP N	2.120	1.364	1.760	1.052	1.045	.3017
VLP N	2.480	1.447	1.960	1.172	1.396	.1656
VC N	3.480	1.005	3.600	1.041	.415	.6832
VLC N	1.520	1.085	1.520	1.262	.000	1.0000
NASAL N	3.440	1.387	3.120	.927	.959	.6558

FORM 32 MEDICAL EXAMINATION NEUROLOGICAL PM STUDY

ITEM	EXPER MEAN	STANDARD DEVIATION	CONTROL MEAN	STANDARD DEVIATION	T-TEST	PROB
1	4.16	1.10	4.76	0.52	2.452	0.016
2	4.20	0.91	4.80	0.50	2.882	0.005
3	3.80	1.04	4.08	1.15	0.901	0.624
4	4.04	1.51	4.56	0.91	1.469	0.144
5	3.96	1.20	4.68	0.62	2.646	0.010
6	4.32	0.94	4.68	0.69	1.537	0.126
7	4.64	0.56	4.36	0.75	1.478	0.142
8	5.00	0.00	5.00	0.00	0.000	1.000
9	5.00	0.00	4.88	0.43	1.364	0.175
10	4.44	1.22	4.56	0.50	0.451	0.657
11	4.76	0.52	4.84	0.47	0.567	0.579
12	4.76	0.83	4.72	0.73	0.180	0.852
13	4.84	0.62	4.48	1.08	1.438	0.153
14	4.84	0.47	4.88	0.43	0.309	0.756
15	4.96	0.20	5.00	0.00	0.999	0.676
16	4.84	0.37	5.00	0.00	2.138	0.035
17	3.68	1.34	4.16	1.06	1.397	0.165
18	4.80	0.50	4.64	0.81	0.840	0.590
19	4.80	0.64	4.84	0.47	0.249	0.799
20	4.40	0.86	4.52	0.77	0.517	0.613
21	5.00	0.00	5.00	0.00	0.000	1.000
22	4.56	0.76	4.52	0.71	0.190	0.843
23	4.20	0.91	4.32	0.94	0.456	0.654
24	4.80	0.64	4.76	0.52	0.240	0.805
25	3.16	1.17	3.72	1.06	1.765	0.080
26	3.20	1.25	3.56	1.15	1.052	0.298
27	4.60	0.64	4.28	0.89	1.454	0.148
28	4.20	1.22	4.44	0.86	0.798	0.565
29	3.76	1.33	4.32	0.98	1.688	0.094
30	4.36	0.90	4.44	0.82	0.326	0.743
31	4.96	0.20	4.96	0.20	0.000	1.000
32	5.00	0.00	4.96	0.20	0.999	0.676
33	5.00	0.00	4.96	0.20	0.999	0.676
34	4.84	0.47	4.84	0.47	0.000	1.000
35	4.88	0.43	4.96	0.20	0.828	0.583
36	8.36	1.49	8.68	1.10	0.859	0.601
37	3.84	1.51	4.16	1.43	0.765	0.546
38	3.40	1.52	4.08	1.32	1.683	0.094
39	3.92	1.60	4.40	1.35	1.142	0.257
40	4.28	0.93	4.64	0.75	1.494	0.137
41	2.48	0.65	2.52	0.77	0.198	0.838
42	3.68	1.57	4.00	1.44	0.749	0.536
43	3.92	1.55	4.60	0.86	1.912	0.058
44	4.36	1.31	4.88	0.43	1.869	0.064
45	3.92	1.15	3.76	1.30	0.460	0.651
46	3.64	1.46	3.52	1.32	0.708	0.511
47	4.84	0.80	5.00	0.00	1.000	0.323
48	5.00	0.00	5.00	0.00	0.000	1.000
49	5.00	0.00	5.00	0.00	0.000	1.000

50	5.32	1.10	5.16	0.80	0.585	0.567
51	5.32	1.10	5.16	0.80	0.585	0.567
52	4.52	0.91	4.76	0.52	1.135	0.260
53	4.80	0.64	4.92	0.40	0.790	0.560
54	3.60	1.35	3.92	1.25	0.866	0.605
55	3.52	1.53	4.04	1.20	1.333	0.185

APPENDIX E

INTERCORRELATIONS AND FACTOR STRUCTURE FOR CLINICAL-STATISTICAL FACTOR ANALYSIS

Factor	A	B	C	D	E	F	G	H	I	J	K	L	M
A	1.00												
B	.40	1.00											
C	.38	.39	1.00										
D	.14	.13	.06	1.00									
E	-.34	-.20	-.18	.04	1.00								
F	.35	.30	.21	.14	-.18	1.00							
G	.30	.37	.14	.30	-.07	.20	1.00						
H	-.42	-.14	-.03	-.01	.32	-.32	-.20	1.00					
I	.17	.07	-.08	-.25	-.18	.17	-.05	-.54	1.00				
J	.15	.21	.09	.30	.20	.25	.22	.18	-.30	1.00			
K	-.33	-.41	-.23	-.03	-.01	-.46	-.16	.27	-.30	-.21	1.00		
L	.23	.03	.08	-.23	-.02	.07	-.18	-.10	.26	-.13	-.23	1.00	
M	-.10	.09	.10	.29	.17	-.24	.26	.18	-.42	.23	.23	-.43	1.00

Form-Card Column	Factor												
	A	B	C	D	E	F	G	H	I	J	K	L	M
21-I, 1	.35	.41	.35	.14	-.22	.51	.55	-.15	-.13	.37	-.33	.09	-.00
21-I, 14	-.63	-.66	-.27	-.20	.48	-.27	-.45	.43	-.16	-.16	.24	.14	-.04
21-I, 15	.08	.16	-.02	.33	-.06	-.38	.60	-.01	-.02	.06	.07	-.08	.24
22-I, 8	.90	.36	.41	.09	-.37	.29	.28	-.33	.18	.12	-.28	.10	-.10
22-I, 17	.79	.28	.43	.02	-.36	.50	.20	-.21	.11	.29	-.27	.08	-.25
22-I, 23	.73	.24	.27	.01	-.03	.28	.13	-.14	-.07	.10	-.20	.41	-.16
22-I, 29	.46	.37	-.05	.33	.02	.50	.52	-.23	-.01	.56	-.34	-.04	.07
22-I, 32	.53	.21	.23	.26	-.06	-.01	.38	.02	-.41	.37	.09	-.18	.43
22-I, 35	.88	.48	.39	.19	-.26	.43	.33	-.24	.01	.25	-.28	.09	.05
22-I, 46	.75	.25	.24	.45	-.14	.27	.29	-.21	-.11	.24	-.21	.02	-.01
22-I, 55	.76	.33	.19	.06	.06	.10	.26	-.41	.15	.20	-.41	.31	-.02
22-I, 70	.77	.27	.37	.33	-.32	.37	.11	-.25	.03	.24	-.29	.07	.14
22-II,36	.45	.26	.17	.02	-.24	.78	.10	-.27	.18	.17	-.41	.17	-.09
22-II,61	-.55	-.21	-.27	-.30	.57	-.15	-.34	.33	.02	.23	-.06	.07	-.07
23-I, 19	-.04	.11	.09	.04	-.24	.11	.03	-.11	.08	-.70	-.05	.15	-.17
23-I, 26	.60	.36	.25	.21	-.25	.26	.36	-.62	.27	-.05	-.39	.08	.07
23-I, 28	.61	.50	.18	-.21	-.43	.30	.28	-.60	.62	-.14	-.26	.33	-.27
23-I, 30	.20	.27	.12	.02	-.05	.08	.07	-.12	.09	-.04	-.21	.79	-.08
23-I, 31	.22	.52	.40	.20	.02	.26	.42	-.27	.03	.30	-.22	-.40	.50
24-I, 12	.20	.82	.14	.01	-.10	.20	.15	-.15	.27	-.03	-.38	.26	-.21
24-I, 13	.61	.78	.51	-.11	-.35	.25	.23	-.48	.35	-.04	-.50	.17	-.12
24-I, 14	.38	.85	.30	-.04	-.42	.33	.31	-.22	.26	.04	-.38	.05	-.07
24-I, 15	.44	.90	.29	.06	-.25	.31	.36	-.25	.17	.06	-.31	.14	.06
24-I, 16	.30	.62	.09	.39	-.04	.41	.25	-.14	.22	.24	-.49	.09	-.29
24-I, 17	.31	.90	.33	.03	-.20	.29	.17	-.23	.15	.01	-.36	.13	-.07
24-I, 20	.49	.88	.42	.04	-.33	.35	.29	-.33	.28	.07	-.45	.12	.08
25-I, 58	-.20	-.17	-.15	-.03	.13	-.15	-.08	.66	-.02	-.13	.09	-.03	-.08
26-I, 61	-.40	-.44	-.48	-.46	.10	-.43	-.19	.13	.04	-.26	.63	-.05	-.08
26-I, 71	-.46	-.44	-.77	-.07	.11	-.39	.03	-.04	.01	-.23	.49	-.15	.21
26-III,24	-.36	-.35	-.23	-.13	.75	-.15	-.13	.24	.04	-.12	.22	-.06	.04
26-III,28	-.31	-.34	-.22	-.05	.85	-.30	-.28	.29	-.31	.11	.17	-.01	.12
26-IV,56	-.10	-.11	-.29	-.15	.10	-.13	-.06	-.05	.08	-.01	.05	.00	.56
26-IV,60	-.30	-.22	-.26	.11	.19	-.52	-.21	.53	-.36	.11	.67	.06	.15
26-IV,68	.00	-.23	.17	.02	.11	-.46	-.02	.23	-.17	-.17	.53	.05	.25
26-IV,71	-.63	-.22	-.25	-.15	.20	-.49	-.11	.21	-.21	-.27	.53	-.41	.51
31-I, 31	-.20	-.29	-.14	-.08	.04	-.14	-.19	.05	-.01	-.06	.74	-.15	.03
32-I, 12	.46	.46	.62	.07	-.02	.27	.18	-.22	.35	.27	-.64	.33	-.03
32-I, 15	.25	.49	.56	-.11	.16	.27	.40	.14	-.11	.22	-.49	.24	.06
32-I, 19	-.17	.11	-.07	-.05	-.01	-.07	-.05	-.00	.66	-.06	.03	-.08	.03
32-I, 54	.14	.12	.03	.07	-.10	.09	.75	-.06	-.04	.02	-.10	-.06	.02
32-I, 59	.25	-.03	.10	.01	-.17	.30	.13	-.23	-.01	.65	-.05	.04	-.04
32-I, 62	.39	.31	.78	.02	-.30	.23	.11	-.26	.14	-.09	-.24	.12	-.22
32-I, 63	.33	.14	.79	.22	-.26	.31	.14	-.24	.03	.04	-.08	.05	-.01
33-I, 26	.29	.37	.43	.15	-.12	.77	.20	-.13	.03	.10	-.19	.01	-.13
33-I, 35	.25	.52	.41	-.27	-.38	.03	-.13	.17	-.13	.01	-.06	.19	-.07
33-I, 38	.25	.01	.20	.67	-.22	.06	.06	-.13	.09	-.19	-.04	.14	-.17
33-I, 51	-.52	-.18	-.38	-.24	.28	-.49	.04	.51	-.30	-.03	.25	-.46	.28

APPENDIX F

INTERCORRELATIONS AND FACTOR STRUCTURE FOR FACTOR ANALYSIS OF MEDICAL DATA

Factor	A P	B Q	C R	D S	E T	F U	G	H	I	J	K	L	M	N	O
A	1.00														
B	0.00	1.00													
C	0.00	0.00	1.00												
D	0.00	0.00	0.00	1.00											
E	0.00	0.00	0.00	0.00	1.00										
F	0.00	0.00	0.00	0.00	0.00	1.00									
G	0.00	0.00	0.00	0.00	0.00	0.00	1.00								
H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00							
I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00						
J	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00					
K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00				
L	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00			
M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00		
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	
O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Q	1.00 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R	0.00 0.00	1.00 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00 0.00	0.00 0.00	1.00 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	1.00									

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
EXP CONT	-.03	-.41	.19	-.03	-.13	-.05	-.01	.20	-.37	.10	.37	-.28	.18	.14	.23	-.18	.13	-.22	-.13	-.17	.06
POLIO 311	.14	-.06	.15	-.01	.18	-.02	-.17	-.03	-.05	-.17	-.17	.01	-.19	.18	-.01	.67	-.35	.05	-.07	.04	-.02
INFECT	.11	-.03	-.00	.09	.03	-.15	.20	-.04	-.14	.03	-.15	.83	.07	-.15	-.00	.03	-.04	.07	-.10	.06	.02
CONVULON	-.11	.03	.08	-.08	.03	.06	-.04	-.12	.11	-.28	-.07	-.02	-.08	.20	-.63	.18	-.13	.04	.01	.14	.22
CARDIO-R	.18	-.05	.05	-.33	.03	-.12	-.11	.13	-.13	.05	.10	.11	.10	-.13	-.25	.00	-.54	-.01	-.27	-.33	.03
OTHER	.04	-.08	.10	.00	.01	.05	-.06	.22	.12	-.23	.00	-.04	.12	-.25	.07	-.01	.02	-.67	-.38	-.17	-.11
WGHT 312	.20	-.22	.14	.08	.15	.50	-.22	-.30	.09	-.07	.01	-.11	.20	-.18	-.11	-.11	.04	.10	-.06	.05	.01
HEAD CIR	.06	-.04	.03	-.01	-.96	-.03	-.01	.04	.04	.01	.03	.00	-.04	.02	.01	.03	.03	.01	.03	.06	.02
EYES	-.07	.68	.01	-.00	-.00	-.42	.27	.06	.05	.06	-.20	-.17	.17	.04	.06	-.15	-.01	.03	.03	-.03	.00
EARS	-.18	.64	-.00	-.15	.05	.23	.24	.11	.07	.04	.01	.08	.16	.12	.17	.30	.11	-.01	.13	-.01	.17
GRS MT 33	.12	.81	.02	-.01	.03	.15	.04	.09	-.02	.09	-.11	-.15	-.17	.05	-.39	-.06	-.02	.02	-.05	.11	-.01
FINE MT	.12	.81	.02	-.01	.03	.15	.04	.09	-.02	.09	-.11	-.15	-.18	.05	-.39	-.06	-.02	.02	-.05	.11	-.01
DIST	-.01	.25	.05	.15	.01	-.06	-.14	-.46	.06	.15	-.27	-.10	-.17	.02	.09	-.14	.07	.12	-.03	-.09	-.58
PERS	-.11	.02	.10	.01	-.29	-.06	.13	.03	.21	-.01	-.43	-.08	-.47	.45	.12	.07	.06	.14	.06	-.09	-.01
COMM	.11	.41	.01	.09	.07	.47	.59	.12	.05	.13	-.09	.03	-.03	.13	.00	.13	.06	.10	.01	.12	.08
ORIEN	-.13	.83	.04	.09	.00	-.22	.12	-.04	.04	-.01	.01	-.08	.02	-.07	.12	-.06	.08	.03	.11	-.12	-.05
G LEVEL	-.15	.75	.04	.19	.03	-.04	-.00	-.03	.05	-.18	.20	.26	-.04	.05	.16	.01	-.03	-.01	-.04	-.13	.11
ARMS 32	.14	-.15	.50	-.20	-.08	.24	.16	.05	-.09	.17	.10	.23	.33	-.12	.12	-.17	.33	-.02	.08	-.12	.23
ARMS AE	.21	-.03	.48	.02	-.01	.04	.08	.37	.02	.38	.24	-.20	-.02	-.03	.37	.10	.21	-.05	.08	.28	.03
ARMS HR	.08	-.10	.13	.16	-.12	.12	.01	.28	.01	.10	.27	.03	.03	-.10	.25	.08	.01	-.03	-.04	.65	-.11
FLEX	.22	-.07	.33	-.25	-.02	.03	.17	.24	-.22	.57	.04	.17	-.02	.11	.03	.14	.01	-.08	.23	.13	-.02
DROP ARM	.27	.11	.29	-.00	-.10	.28	.11	.14	-.02	.17	.46	.0	.06	.29	.29	-.13	-.14	-.17	-.09	.13	-.31
IRR POS	.19	.16	.18	.17	-.12	-.01	.01	.19	-.16	.66	.15	.09	.35	-.11	.08	-.10	-.04	-.00	.03	.17	.22
WHIRL	.22	.00	.06	.02	-.07	-.00	.00	-.02	.13	.15	-.03	.22	.24	.00	-.03	.09	.10	.05	.12	.76	-.03
RESIS	.09	.04	.09	.26	.54	-.23	.00	.08	.32	-.09	.11	.03	-.10	-.01	-.12	.20	.46	.06	-.19	.22	-.07
COPY FIN	.08	-.11	.16	-.09	-.06	.24	.10	.21	.11	.09	.33	.67	-.04	.21	.01	-.10	.03	-.10	-.02	.14	-.06
ABNOR	.17	.12	-.03	.12	-.05	-.02	-.08	-.02	.01	.07	.04	-.08	-.11	-.04	.15	-.11	.09	.01	.08	-.14	.86
AH	.08	.11	-.09	.06	.01	.04	.05	.68	-.07	-.13	.06	.17	-.24	-.01	.08	-.20	-.15	-.12	.32	.23	-.03
TREMOR	-.12	.08	-.09	.03	-.03	.14	.10	.27	.74	-.03	-.04	-.16	-.15	-.04	-.10	-.13	.07	-.10	.01	.05	.00
HEEL	.03	-.10	-.05	.24	-.01	.02	-.12	.44	.20	-.03	-.26	.07	.06	.02	.57	.01	-.17	-.04	.07	.04	.25
TOE	.14	-.07	-.00	.25	.00	.04	.03	-.06	.03	-.10	-.14	-.07	.14	.04	.86	.07	-.00	.03	-.02	.08	.10
HOP	.17	.08	-.05	-.03	-.00	-.08	.06	.44	-.16	-.02	.33	.02	-.05	.00	.60	-.09	-.02	-.02	.11	.16	.10
STAND	.07	.05	.10	-.03	-.11	-.05	-.06	.84	.09	.22	-.04	-.12	.14	-.05	.01	-.05	.05	.10	-.03	-.09	.08
SKIP	.45	.01	-.03	.27	.02	-.31	.05	-.09	.24	.31	.06	.05	-.02	-.01	.04	.12	.48	.19	-.05	.13	.08
WALK LNE	.12	.07	.78	.10	.05	-.09	.05	.23	.17	-.08	.06	.08	-.04	-.04	-.13	.03	.15	-.04	-.03	.27	.14
ASSC MVE	.23	.13	.08	.16	-.04	-.00	.01	.83	.18	.09	-.00	.09	.13	-.08	.10	-.08	.07	.07	.07	.06	-.09
FT TAP	.12	.21	.40	.46	-.09	.14	.01	-.09	.17	.01	-.04	-.01	.23	.00	-.07	-.13	-.03	-.00	.16	-.02	.44
FI NOSE	.09	.10	.22	.17	-.10	-.14	.10	.11	.04	.04	.16	-.17	.06	.04	.01	.01	-.21	-.07	.74	.13	.13
FI PUR	-.12	.18	.66	-.17	-.04	-.00	-.41	.04	.01	.10	-.11	.07	.09	.08	.01	-.05	-.06	.01	.30	.31	-.04
FI THMB	-.08	-.12	.38	.20	.18	-.15	-.03	-.03	.21	.01	.14	-.07	.68	.09	.09	-.10	-.08	-.05	.06	.07	-.08
HANDS	.08	.10	.34	.17	.06	-.10	-.01	.00	.31	.10	.23	-.32	.34	.18	.12	-.17	.01	.24	.21	-.22	.10
IND-TH	-.23	.05	.32	.04	-.08	-.11	.05	-.01	.74	-.05	-.09	.05	.17	.01	.09	.07	-.05	-.12	.04	.04	.04
PAP CLIP	-.09	-.10	.37	-.03	.19	.05	.02	-.07	.01	.33	-.09	.14	.47	.43	-.11	-.16	.00	-.01	.10	.13	-.10
SYM	.16	.03	.13	-.04	.16	.02	-.11	.20	.05	-.15	.09	.03	.08	.19	.01	-.76	-.16	-.10	-.08	-.05	.07
NON SYM	-.14	.02	-.15	.11	-.12	.00	-.24	.04	.13	.54	.15	-.05	.08	-.09	-.10	.45	.15	-.16	-.31	.13	-.15
PLANTAR	-.07	.05	-.01	-.07	-.05	.05	.04	.13	-.09	-.14	-.03	-.02	-.00	-.05	-.00	.06	-.06	.86	-.17	-.03	-.05
PLANTAR	-.05	.04	-.02	.00	.96	.03	.02	-.04	-.05	.00	-.03	-.00	.05	-.02	-.01	-.03	-.04	-.01	-.03	-.06	-.02
LONUS	.10	.07	.00	-.02	-.04	.03	.01	.03	-.06	.03	-.10	.02	.06	-.05	-.06	-.01	.86	-.08	-.08	.02	.03
UNUSUAL	-.06	.17	-.05	.14	-.07	-.03	-.18	-.18	-.08	-.09	.14	-.05	.12	.80	-.12	-.05	-.05	.04	.05	-.13	-.06
CF SELP	.90	-.13	.03	.10	.06	.02	-.01	.13	-.07	.11	.12	.12	-.02	-.03	.00	-.07	-.04	-.08	.06	.06	.07
CF ON E	.08	-.09	-.14	.06	-.10	-.03	-.08	-.08	-.09	.07	.79	.01	-.01	.08	-.06	-.09	-.13	.04	.15	.04	.15
BODY MOV	.88	-.12	-.06	.02	-.01	-.04	.02	.03	-.11	.12	.15	.04	-.02	-.05	.15	-.11	.04	-.05	-.01	.19	.14
TACTILE	-.17	-.12	.22	.19	.09	-.09	.21	.08	-.34	.31	-.03	.10	.23	.06	-.18	.08	.07	.04	.48	-.14	-.12
SEPAR	.00	.00	-.08	.88	.12	-.02	.07	.07	-.09	-.06	-.01	-.02	-.07	.12	.12	.02	.12	-.06	-.02	.08	-.11
AFT DIR	.71	.01	.11	-.09	-.14	.15	.07	.15	-.11	-.18	-.11	-.01	.44	.02	.11	.04	.11	.06	-.01	-.01	-.06
AFT REM	.56	.05	.18	-.05	-.09	.17	-.00	.19	-.13	-.03	-.02	-.00	.62	-.01	.26	-.00	.15	-.11	.07	.01	.08
HEAD HLD	.24	-.10	-.13	.04	-.02	.11	.07	.24	-.07	.29	-.02	.04	.70	.07	.27	-.06	.12	.03	.10	.23	-.04
EYE T	.05	.07	-.09	.90	-.02	-.02	.02	.04	.08	.09	-.02	.04	.15	-.02	.14	-.01	.04	-.02	.14	.01	.15
BLINK	.01	.05	.11	.46	-.06	.14	-.02	.07	.23	.14	.14	.08	.06	.15	.22	.05	-.13	-.09	.27	-.55	.09
EOM IRR	-.05	.03	.95	-.06	-.01	.07	.02	.01	-.03	.12	-.02	.08	.00	.00	.00	-.06	-.04	.00	.02	.03	-.03
TO LIGHT	.03	.14	.01	.00	.02	-.05	.96	-.00	.03	-.01	-.02	.10	.03	-.05	.01	-.02	.03	.01	.03	.01	-.02
TO ACC	.03	.14	.01	.00	.02	-.05	.96	-.00	.03	-.01	-.02	.10	.03	-.05	.01	-.02	.03	.01	.03	.01	-.02
TONGUE	.03	.05	.53	.22	.33	.21	-.19	-.15	-.04	.10	.01	.13	.27	-.21	.31	-.11	-.11	.05	.02	-.15	-.04
EYE	.09	-.03	.82	-.03	-.08	-.07	.07	.01	.03	-.07	-.05	-.13	.10	.09	-.08	.02	-.08	.00	.13	-.17	-.14
LAT 20	.06	-.00	.21	.12	-.11	.24	-.16	.23	.21	-.05	.13	.04	.20	.01	.19	-.03	.17	-.03	.63	-.17	.04
LAT WW	.21	.17	.19	-.19	.07	-.03	-.11	.22	.28	.38	.46	-.06	.09	-.23	.02	-.00	.19	.04	.25	-.09	-.10

APPENDIX G

INTERCORRELATIONS AND FACTOR STRUCTURE FOR FACTOR ANALYSIS OF SPEECH AND HEARING DATA

Factor	A P	B Q	C R	D S	E T	F U	G V	H W	I	J	K	L	M	N	O
A	1.00														
B	.26	1.00													
C	.22	.14	1.00												
D	.22	.33	.14	1.00											
E	.10	.28	.12	.13	1.00										
F	.37	.09	.33	.15	.17	1.00									
G	.18	.03	.20	.04	.06	.43	1.00								
H	-.17	-.01	-.27	.02	.04	-.47	-.37	1.00							
I	.34	.25	.26	.17	.23	.39	.18	-.03	1.00						
J	-.14	.00	-.19	-.12	.04	-.19	-.13	.42	-.07	1.00					
K	.23	-.24	.04	-.19	-.01	.42	.30	-.25	.17	.18	1.00				
L	-.06	-.16	-.01	-.11	-.03	.10	.12	.00	.08	.20	.41	1.00			
M	-.25	-.01	-.30	-.15	-.08	-.38	-.23	.39	-.32	.42	-.21	-.15	1.00		
N	-.11	-.30	-.04	-.25	-.16	.03	-.05	-.14	-.08	.17	.42	.10	.05	1.00	
O	.13	.14	.15	-.13	-.02	.04	.09	-.27	.09	-.11	.02	.01	-.19	-.08	1.00
P	.23	.13	.45	.16	.32	.49	.34	-.31	.42	-.38	.12	.09	-.70	-.18	.13
Q	1.00	.13	.23	.22	.27	.34	.04	-.14	.15	.21	-.03	-.11	-.04	-.08	-.17	-.04
R	.22	1.00	.26	-.00	.44	.11	-.03	.45	.38	-.30	.39	-.24	.14	-.09	-.37	.11	.06
S	.46	.07	1.00	.28	-.07	.28	-.03	.12	.30	.19	-.18	.33	-.16	.42	.29	-.36	.09	-.06
T	.34	.06	.23	1.00	-.02	.08	-.13	-.05	.22	-.19	-.07	.05	-.14	.01	-.16	-.15	.13	-.12	.15
U	-.11	-.07	-.16	.07	1.00	.12	.16	.11	.11	.14	.20	.21	-.02	.09	.05	.03	.12	.00	-.11	.16
V	.09	-.05	.08	.28	.19	1.00	.14	-.33	.14	-.26	-.11	.23	.34	-.42	.18	-.14	.46	.22	-.37	.30	.16
W	.18	-.38	.35	.52	.11	.14	1.00	-.01	-.08	-.20	-.11	.09	.09	-.10	.07	-.16	.30	.20	.17	.07	.11	-.20
	-.06	-.16	-.20	.12	-.03	.02	.02	1.00							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Exp Cont	-.17	-.24	-.25	-.19	-.22	-.21	.05	.53	-.04	-.16	-.23	-.21	.14	.06	-.21	-.25	-.16	.06	-.19	.01	-.20	.05	.05
N 9 261	-.03	.03	.08	-.08	-.01	.67	.02	-.04	.06	.03	-.02	.00	-.21	.06	-.21	-.00	.01	.12	-.00	-.09	-.02	.01	.00
F 23	.47	.44	-.02	.25	.80	.32	-.01	.40	.06	.06	.12	.04	-.04	-.12	-.17	.40	.38	.02	.24	.05	.03	-.19	-.30
N 27	.17	.06	.34	.11	-.04	.29	.12	-.40	.16	.47	.00	-.11	-.40	-.06	-.18	.30	.38	.02	.24	.03	.03	.23	-.30
N 28	.52	.02	.16	.03	.27	-.29	.26	.16	-.04	-.11	-.23	.32	-.21	-.38	.20	.31	.14	.38	.35	-.02	.58	.23	-.30
(Bh) 33	.25	.94	.00	.19	.30	-.01	-.05	.06	.29	.16	-.15	-.09	.05	-.18	.13	.01	.18	-.06	-.06	.04	.11	.06	-.21	-.00
(Bh) 34	.25	.94	.00	.19	.30	-.01	-.05	.06	.29	.16	-.15	-.09	.05	-.18	.13	.01	.18	-.06	-.06	.04	.11	.06	-.21	-.00
(Bh) 35	.25	.94	.00	.19	.30	-.01	-.05	.06	.29	.16	-.15	-.09	.05	-.18	.13	.01	.18	-.06	-.06	.04	.11	.06	-.21	-.00
T 36	.10	.78	.24	.28	.36	.25	.10	-.10	.21	.01	-.17	-.06	.11	-.21	.12	.06	.18	.12	.18	.02	.12	.55	-.14	-.14
T 37	.25	.60	-.05	.41	.38	.06	-.06	.26	.06	.17	-.23	-.13	.22	-.36	-.05	-.06	.27	-.18	-.03	.17	.64	-.47	.04
T 38	.18	.84	-.07	.26	.27	.11	.05	.07	.18	.17	-.14	-.06	.15	-.30	.17	-.03	.12	-.10	-.02	.21	.55	-.23	.05
DZ 47	.25	.94	.00	.29	.30	-.06	-.03	.06	.29	.16	-.15	-.09	.05	-.18	.13	.01	.18	-.06	-.04	.11	.06	-.21	-.00
Θ 48	.19	.32	.30	.18	.76	.31	.07	-.12	.20	-.04	.06	-.06	-.15	-.06	.08	.24	.15	.18	-.03	-.10	.08	-.11	.03
Θ 49	.25	.48	.32	.28	.38	.49	.49	-.34	.18	-.30	-.07	-.15	-.33	-.30	.29	.61	.08	.36	-.12	.03	.21	-.08	-.11
Θ 50	.25	.56	.45	.35	.12	.42	.37	-.29	.22	-.30	-.35	-.35	-.27	-.48	.25	.46	.02	.38	-.12	.08	.23	-.17	-.28
V 51	.41	.28	.48	.25	.33	.37	.04	-.34	.44	-.47	.03	-.06	-.46	-.01	.06	.61	.46	.40	.35	-.23	.08	-.03	-.05
V 52	.48	.33	.46	.34	.39	.49	.07	-.26	.45	-.49	-.13	-.29	-.45	-.21	.09	.60	.30	.39	.18	.13	.01	-.05	-.26
Θ 56	.13	.32	.00	.09	.29	.11	-.02	.10	.82	.08	.01	.00	-.07	-.11	-.01	.17	.24	.01	.08	-.04	.01	-.02	.11
Z 57	.41	.49	.18	.15	-.03	.13	.37	-.01	.69	.04	.04	.02	-.08	-.16	.10	.22	.06	.18	.04	-.18	.06	-.03	-.21
Z 59	.16	.28	-.06	.15	.18	.14	-.04	.07	.76	.00	.06	-.12	.01	-.08	-.01	.03	.06	.01	.04	-.06	.02	-.06	-.15
X/O 60	.02	-.02	.26	.02	.53	.47	.60	-.39	.19	-.16	.21	.20	-.17	.10	-.16	.43	.08	.33	.20	-.01	.08	.23	-.11
X/O 61	.46	.71	.53	.28	.21	.26	.13	-.35	.34	-.34	-.11	-.13	-.38	-.13	-.27	.41	.29	.35	.27	.08	.21	.10	-.31
BR 63	.87	.37	.19	.22	.52	.41	.15	-.11	.44	-.11	.21	-.02	-.30	-.15	.04	.40	.28	.21	.35	.01	.16	.04	.08
DR 64	.65	.20	.12	.28	.42	.22	-.02	-.02	.37	-.00	-.15	-.10	-.22	-.02	.02	.14	.04	-.03	.20	.23	.06	.07	.01
PL 65	.47	.44	-.02	.25	.80	.32	-.01	.10	.40	-.04	-.12	-.17	-.26	-.06	.09	.31	.14	.02	.24	.05	.03	-.19	.20
TR 72 2	.75	.38	.10	.28	.48	.46	.21	-.08	.34	-.06	-.01	-.17	-.26	.09	.31	.22	.13	.32	.12	.58	.35	-.02	.12
SAW 73	.34	.04	.10	.30	-.20	.32	.66	-.02	.16	-.05	.04	-.05	-.22	.11	-.20	.00	.03	-.27	-.13	.35	-.13	-.04	-.10
SAW 77 3	.59	.33	.32	.46	.21	.53	.12	-.12	.42	-.24	.16	-.12	-.52	-.33	.01	.59	.48	.35	.25	-.15	-.05	-.12	.05
WON 79	.56	.09	.15	.14	-.13	.32	.30	-.21	.06	-.15	.12	.03	-.12	-.18	.31	.13	-.08	.16	.20	.11	.77	.16	-.04
PAR 85	.14	.18	.25	.47	.23	.52	.38	-.16	.25	.10	.22	.26	-.17	-.01	-.23	.23	.29	.25	.12	-.05	-.32	-.16	-.19	.01
STA 87	.22	.15	.32	.70	.22	.32	.08	-.15	-.01	-.20	-.00	.04	-.25	-.15	.04	.40	.11	.07	.11	-.04	-.15	-.04	-.07	.27
NOM 88	.21	.20	.08	.69	.12	.33	.07	-.22	.24	.01	-.08	-.12	-.28	-.12	.11	.17	-.16	.21	-.04	-.12	-.03	.12	-.06	.08
OBS 90	.03	.21	.10	.63	-.15	.03	.10	-.27	.05	-.18	-.27	-.30	-.01	.08	-.00	.01	-.14	.22	-.12	-.03	.12	-.06	.05	
SURE 91	.23	.07	.21	.74	.14	.29	.30	-.16	-.07	.26	.21	-.23	-.01	-.14	-.11	.20	.14	.11	.27	-.22	.15	.05	-.01	
IMM 93	.09	-.11	.14	-.10	-.07	.04	.01	-.14	.04	-.21	.11	-.02	-.18	.15	.16	.02	.14	.06	.10	.14	.11	.03	.19	-.79
SCORE 71	-.47	-.30	-.30	-.86	-.19	-.47	-.25	.22	-.38	-.28	-.00	.13	.42	.21	.02	-.47	-.23	-.41	-.20	.03	-.12	-.04	.10	
PARA 72	-.25	-.10	-.02	-.72	-.01	-.27	-.30	.26	-.16	-.27	-.12	.03	.14	.09	.24	-.17	-.06	-.23	-.12	.03	-.06	-.06	.28	
TIME 73	.82	.16	.38	.32	.04	.46	.52	-.39	.23	-.20	.25	.05	-.41	-.10	.18	.45	.05	.42	.31	.01	.25	.29	-.09	
NUM 74	-.39	-.15	-.31	-.65	-.01	-.26	-.32	.10	-.38	.31	-.09	.16	.29	-.30	-.05	-.36	-.06	-.44	-.37	.09	-.15	-.19	.24	
VENT 75	-.14	.17	-.31	-.22	.33	.14	.18	-.03	.21	-.01	-.19	.13	-.24	-.31	-.12	.16	.24	-.24	-.10	.38	.12	-.19	-.02	
OMIS 76	-.07	-.07	.01	-.09	-.05	.06	-.11	.02	.04	-.08	-.19	-.01	-.30	.16	-.05	-.08	.04	-.64	.02	-.10	-.05	-.01	.03	
MIS 77	-.08	.25	-.05	.53	.06	-.10	-.12	-.02	-.20	-.16	-.19	-.09	-.15	.27	-.22	-.07	.34	.01	-.24	-.01	.01	-.26	-.11	-.04
REF 78	-.15	-.23	-.28	-.31	-.09	-.28	-.26	0.35	.00	-.16	-.24	-.31	-.12	.22	-.07	.34	.16	.24	-.10	.38	.12	-.19	-.02	
ADD 79	-.13	-.10	.18	-.37	.08	-.14	-.09	.49	.03	.26	-.09	-.10	-.05	-.01	-.05	.04	-.66	-.03	-.14	-.07	-.11	-.06	.13	
HES 710	-.12	-.08	-.03	.07	-.09	-.01	-.12	-.00	-.13	-.05	-.10	-.10	-.05	-.01	-.05	.04	-.05	.03	-.14	-.01	-.07	-.11	-.07	.03
IGN 711	-.16	.00	-.13	-.05	-.04	-.13	-.06	-.07	-.18	-.10	-.06	.67	.03	.01	.04	-.17	-.05	-.14	-.03	-.10	-.22	.33	-.10	
E PR 712	.87	.10	.40	.20	.05	.46	.51	-.35	.34	-.25	.26	.02	-.42	-.14	-.17	.49	.05	.46	.37	-.10	-.15	.47	-.06	
WK 106 4	-.01	.08	-.07	-.01	-.07	-.15	-.06	.08	.12	-.17	-.02	-.03	.14	-.05	.04	-.17	-.05	-.04	-.03	.10	-.04	-.17	-.06	.34
DIG 107	.03	-.03	.06	-.19	-.18	.19	-.10	-.27	-.21	.12	.25	.11	.20	.15	-.15	-.22	-.17	-.31	.13	-.06	-.17	.44	.41	.30
CATH 110	.42	.21	.02	.07	-.04	.68	.28	-.35	.24	-.02	.52	.20	-.30	.15	.11	.15	-.21	.17	.47	-.01	.44	.10	-.14	
TACK 111	.47	.05	.48	.22	.18	.72	.32	-.40	.45	-.39	.21	-.03	-.38	-.19	.16	.56	.25	.56	.12	-.38	-.02	.00	-.11	
PATE 112	.02	.05	.02	-.15	-.10	-.00	-.07	-.11	-.04	-.05	-.11	-.07	-.08	-.03	.81	.05	.00	.05	-.08	.15	.17	.00	-.11	
KNEE 113	.22	.11	.04	.12	.07	.32	.24	-.23	.24	-.08	.18	.01	-.34	-.09	.30	.28	-.01	.34	.21	.66	.24	.26	-.14	
BIG 115	-.02	.20	.12	-.03	.14	-.12	.01	.19	.11	.80	.12	.02	.05	.11	.06	-.03	.05	.04	-.03	.07	.04	.06	.07	
VINE 116	.87	.53	.29	.31	.19	.10	.02	.00	.27	-.06	-.07	-.13	-.16	-.18	.10	.18	.27	.13	.13	-.01	.19	-.17	-.12	
MIG 116	.27	.19	.26	-.05	-.06	.01	.12	-.10	-.11	-.01	.24	.21	-.13	-.15	.66	.12	.21	.14	.05	.11	.27	.11	.02	
CAP 120	.19	.27	.32	.32	.49	.52	.30	-.09	.18	-.07	.13	.06	-.08	-.31	.22	.67	.18	.34	.56	.12	.12	.41	.00	
PAIL 119	.60	.00	.27	.10	.24	.48	.28	-.42	.35	-.46	.31	-.00	-.67	-.07	-.22	.35	-.24	-.20	.14	.21	.05	.12	.38	.01
WE 123	.66	-.11	.14	.03	.26	.46	.30	-.34	.32	-.08	.50	.19	-.46	.02	.19	.36	-.27	-.03	.38	.05	.08	.18	-.09	-.04
PACK 127	.03	.03	.12	.13	.22	.66	.09	-.19	.03	-.20	-.06	-.07	-.13	-.14	.01	.18	.27	.13	.13	-.01	.19	-.17	-.12	
SAIL 128	.87	.53	.29	.31	.19	.10	.02	.00	.27	-.06	-.07	-.13	-.16	-.18	.10	.18	.27	.13	.13	-.01	.19	-.17	-.12	
BEAR 135	-.28	-.19	.11	.02	-.19	-.13	-.01	-.08	-.08	-.19	-.64	-.08	-.00	-.06	.07	-.15	-.03	-.08	.01	-.09	-.02	-.12	-.08	-.02
COAL 138	.01	.19	-.09	.09	-.13	-.01	.06	-.08	-.08	-.19	-.64	-.08	-.00	-.06	.07	-.15	-.03	-.08	.01	-.09	-.02	-.12	-.08	-.02
SIGN 139	-.02	.00	.17	.14	.24	.25	-.09	-.04	.08	.32	.27	.11	-.10	.41	-.10	.15	.37	.12	-.33	-.32	-.12	-.23	.17	

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APPENDIX H

INTERCORRELATIONS AND FACTOR STRUCTURE FOR FACTOR ANALYSIS OF EDUCATIONAL DATA

Factors	A	B	C	D	E	F	G	H	I	J
A	1.00									
B	.16	1.00								
C	-.40	-.13	1.00							
D	.26	-.25	-.17	1.00						
E	-.31	.18	.17	-.40	1.00					
F	-.00	.04	-.10	.09	.04	1.00				
G	.15	-.04	.00	.25	-.36	.13	1.00			
H	.36	-.12	-.22	.24	-.27	.10	-.08	1.00		
I	-.16	-.18	.08	.09	-.18	-.08	-.07	.13	1.00	
J	-.28	.03	.28	-.19	.39	-.00	-.07	-.34	-.09	1.00

	A	B	C	D	E	F	G	H	I	J
EXP CONT	.27	.04	-.08	.05	-.20	.83	.14	.09	-.12	-.05
TCH AP 23	-.70	-.09	.50	-.37	.12	-.37	.04	-.45	.10	.36
ITM 1 24	.42	.00	.04	.34	-.29	-.09	.77	.10	.09	-.14
ITEM 2	.77	.03	-.38	.44	-.52	.00	.49	.32	.07	-.29
ITEM 3	.89	.12	-.51	.21	-.34	.06	.12	.45	-.11	-.39
ITEM 4	.87	.27	-.26	.27	-.28	.11	.28	.22	-.05	-.17
ITEM 5	.86	.08	-.40	.34	-.32	.22	.31	.22	-.03	-.19
ITEM 6	.49	.08	-.28	.16	-.37	.18	.74	.26	-.01	-.15
ITEM 7	.84	.17	-.41	.32	-.39	.06	.37	.11	-.19	-.11
ITEM 8	.77	.17	-.36	.09	-.19	-.10	-.10	.26	-.42	-.36
ITEM 9	.74	.13	-.33	-.12	-.06	-.10	.10	.20	-.34	-.19
ITEM 10	.89	.24	-.29	.36	-.24	.15	.20	.30	-.13	-.26
TOTAL 24	.96	.17	-.41	.30	-.38	.07	.39	.31	-.15	-.29
1 RUN 25	.01	-.36	.35	.37	-.59	.16	.40	.26	.21	-.31
1 NEVER	-.12	-.02	.08	-.28	.80	-.12	-.33	-.21	-.09	.27
1 NS	.22	.87	-.27	.01	.02	-.05	-.05	-.01	-.11	.07
2 LOT FR	.43	-.20	.03	.43	-.59	-.42	.06	.47	.34	-.42
2 NO FRN	-.51	-.07	.65	-.22	.65	.16	-.17	-.28	.01	.55
2 NS	.18	.84	-.40	-.03	.04	.22	.15	-.09	-.26	-.06
3 FN SCH	.57	-.28	-.31	.62	-.43	.09	.25	.71	-.05	-.31
3 NEVER	-.56	.10	.66	-.15	.12	.05	.24	-.43	.01	.26
3 NS	.01	.78	-.11	-.37	.34	-.11	-.34	-.33	.04	.11
4 FRIGHT	.35	-.12	-.17	.76	-.29	.22	.22	.45	-.16	-.17
4 N LIKE	-.42	-.21	.71	-.22	.34	-.21	.08	-.54	.02	.35
4 NS	.17	.84	-.24	-.27	-.01	-.03	-.12	.07	.11	-.10
5 ACTIVE	.06	-.32	-.22	.73	-.45	.00	.19	.20	.45	-.39
5 NEVER	-.38	.10	.58	-.24	.56	-.09	-.45	-.05	.18	.49
5 NS	.37	.85	-.12	-.15	-.02	.05	.22	-.01	-.38	-.04
6 HAPPY	.32	-.16	-.15	.83	-.38	.03	.05	.30	.06	-.37
6 SAD	-.31	-.07	.32	-.28	.30	.02	-.04	-.25	.02	.86
6 NS	.15	.82	-.06	-.29	.09	-.04	.08	.02	-.06	-.33
7 BEST	.21	-.37	-.15	.75	-.67	.17	.27	.41	.31	-.37
7 FALLS	-.38	.19	.15	-.38	.88	-.03	-.17	-.28	-.08	.25
7 NS	.23	.82	.09	-.27	.04	-.10	-.04	-.11	-.23	.16
8 TURNS	.36	-.18	-.36	.83	-.31	-.09	.18	.26	-.10	-.29
8 NEVER	-.38	-.27	.79	-.16	-.08	-.16	.08	-.43	.31	.31
8 NS	.12	.86	-.14	-.36	.28	.15	-.09	.12	-.10	.02
9 TEASE	.29	-.12	-.21	.49	-.36	.02	.18	.77	-.03	-.26
9 MAD	-.27	-.08	.44	-.17	.04	-.14	.09	-.24	.78	.17
9 NS	.17	.83	-.05	-.05	.21	.09	-.04	-.32	-.40	.02
10 TALKS	.38	-.14	-.32	.78	-.33	-.07	.19	.33	.01	.03
10 NEVER	-.45	-.22	.86	-.20	.10	-.00	-.11	.02	.22	.11
10 NS	.20	.88	-.26	-.23	.17	.06	.01	-.16	-.13	-.10

APPENDIX I

INTERCORRELATIONS AND FACTOR STRUCTURE FOR FACTOR ANALYSIS OF PSYCHOLOGICAL DATA

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
A	1.00																		
B	-.43	1.00																	
C	-.30	.20	1.00																
D	-.47	.42	.33	1.00															
E	.10	-.24	-.22	-.07	1.00														
F	-.31	.32	.22	.22	-.32	1.00													
G	.29	-.43	-.20	-.38	.08	.01	1.00												
H	-.18	.46	.17	.29	-.08	.16	-.24	1.00											
I	-.15	.08	.05	-.04	-.44	.43	.20	-.07	1.00										
J	.05	.00	-.07	-.14	.05	-.01	.09	-.11	-.03	1.00									
K	-.21	.44	.29	.12	-.22	.15	-.37	.38	.16	-.01	1.00								
L	-.32	.28	.20	.09	-.20	.14	-.26	.19	.21	-.00	.49	1.00							
M	.27	-.37	-.13	-.29	.03	-.11	.49	-.27	.14	.14	-.38	-.23	1.00						
N	-.03	-.12	-.06	-.16	-.17	.12	.06	-.02	.44	-.10	.19	.32	-.09	1.00					
O	.11	-.23	-.12	-.11	.08	-.32	-.01	-.11	-.34	.14	-.17	-.03	.06	-.16	1.00				
P	.00	.07	-.00	-.06	-.30	.21	-.02	.13	.47	-.06	.34	.37	-.19	.44	-.09	1.00			
Q	.20	-.33	-.09	-.39	-.15	.05	.37	-.52	.31	.05	-.36	-.25	.40	.01	-.03	-.01	1.00		
R	.21	-.30	-.31	-.13	.23	-.32	.08	-.01	-.22	.02	-.34	-.19	.16	.02	.20	-.14	-.02	1.00	
S	.29	-.31	-.24	-.02	.31	-.09	.27	-.03	-.16	.12	-.33	-.34	.23	.11	.08	-.10	-.05	.23	1.00

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Exp Cont	.36	-.18	-.01	-.21	-.04	-.11	.09	-.18	.05	.05	-.07	-.07	.18	-.00	-.02	.63	.24	.04	.06
Vis T034	-.59	.20	.26	.47	-.18	.24	-.48	.06	.17	-.29	.22	.34	-.40	.26	.07	.22	-.24	-.09	-.21
Aud V222	.89	-.34	-.23	-.37	.10	-.27	.20	-.15	-.06	.19	-.09	-.26	.17	-.00	.16	.09	.25	.14	.30
Visual	.54	-.14	-.14	-.40	.18	.06	.01	-.10	.09	-.01	.10	-.08	-.01	.14	-.42	.08	.31	-.02	.03
Motor	.60	-.45	.02	-.42	.01	-.18	.18	-.07	.05	-.12	.11	-.05	.01	.50	-.05	.19	.04	-.03	.25
A-V A	.74	-.48	-.25	-.47	.10	-.36	.40	-.30	.05	.15	-.14	-.14	.42	-.06	.34	.18	.27	.19	.09
V-M S	.55	-.33	-.47	-.49	.03	-.16	.27	-.46	.24	.29	-.31	-.08	.37	.06	.13	.11	.52	.27	.11
V-Encod	.74	-.12	-.27	-.47	.05	-.20	.13	-.07	-.14	.05	-.01	-.00	.08	-.08	-.02	.03	.05	.11	-.16
A-V S	.21	-.12	-.11	.11	-.03	-.04	.05	-.14	.04	.02	-.16	-.10	.16	-.65	.05	.04	.10	-.00	.11
VM A	.42	-.33	.08	-.36	-.56	-.01	.27	-.25	.16	.21	-.21	-.05	.36	-.01	.15	.19	.39	.16	.03
A-Dec	.46	.06	-.01	-.15	-.15	.24	.31	.20	.24	.30	.09	.22	.17	.21	.09	.41	-.01	-.16	.20
ITPA Tot	.86	-.36	-.23	-.48	-.14	-.08	.39	-.25	.07	.14	-.10	-.12	.29	-.10	.07	.18	.26	-.06	.20
Eye Mot	.14	-.46	-.25	-.46	.23	-.22	.57	-.32	-.07	.54	-.40	-.23	.25	-.06	.18	-.13	.23	.27	.25
F-G	.32	-.45	-.33	-.37	.21	-.16	.52	-.14	.06	.34	-.27	-.10	.54	.41	-.01	-.03	.18	.31	.41
Form	.71	-.35	-.28	-.53	-.05	-.24	.48	.05	-.00	.18	-.13	-.22	.44	.14	.17	-.01	.10	.39	.37
P Space	.58	-.40	-.39	-.46	.34	-.19	.38	-.25	-.20	.58	-.29	-.35	.25	-.12	.18	-.03	.18	.06	.46
Sp. Rel	.59	-.67	-.54	-.66	.30	-.37	.38	-.55	-.12	.15	-.43	-.27	.45	.08	.34	-.13	.36	.33	.24
P. Q.	.61	-.14	-.26	-.43	-.11	-.14	.17	-.12	.07	.68	-.05	-.17	.18	.06	-.01	.07	.16	.12	.04
Percent	.57	-.08	-.21	-.31	-.14	-.13	.16	-.08	.04	.72	-.01	-.10	.18	.02	.01	.09	.14	.13	.02
CTMM IQ	.55	-.13	-.07	-.31	-.23	.10	.01	-.20	.21	.36	.11	-.25	.22	.09	-.07	.10	.28	-.14	.27
PPVT IQ	.79	-.49	-.30	-.44	.13	-.18	.38	-.30	.12	.06	-.33	-.31	.44	.16	-.06	.00	.22	.26	.44
FT PH222	.49	-.57	-.27	-.31	.34	-.18	.70	-.26	-.00	-.08	-.35	-.24	.23	.14	-.15	-.04	.11	.17	.37
FT OTH10	.48	-.59	-.22	-.47	.23	-.25	.77	-.42	.02	.18	-.22	-.23	.29	.20	.07	-.01	.29	.19	.32
FT PH 30	.29	-.39	-.16	-.30	.16	-.11	.87	.07	-.00	.08	-.28	-.24	.35	.03	.17	-.08	.16	.17	.30
FT OTH30	.30	-.40	-.20	-.35	.17	-.12	.89	-.31	-.04	.15	-.28	-.24	.34	-.01	.15	-.08	.20	.10	.26
P-O/P+O	-.16	.10	.05	.14	.08	-.07	-.17	.00	-.09	-.08	.09	.75	-.07	-.08	.05	-.02	-.02	-.05	-.18
Bead	.30	-.57	-.19	-.63	.17	-.19	.51	-.33	-.09	.22	-.47	-.37	.35	-.00	.29	-.10	.51	.17	.27
Bal BONE	.51	-.58	-.23	-.38	-.13	-.22	.36	-.48	.06	-.17	-.32	-.27	.33	.04	.19	.17	.54	.06	-.07
Bal BTWO	.26	-.52	-.18	-.44	-.16	-.01	.52	-.46	.47	-.19	-.23	-.20	.31	.21	-.01	.34	.68	.05	-.10
PA One	-.11	.67	-.00	.25	-.17	.02	-.46	.19	-.16	-.13	.28	.30	-.47	.16	-.04	-.00	-.25	-.04	-.04
PA Two	-.36	.86	.12	.42	-.16	.09	-.39	.19	-.01	.06	.21	.11	-.21	-.28	-.08	-.06	-.12	-.21	-.32
PA Three	-.44	.89	.23	.40	-.25	.23	-.41	.39	.19	-.01	.37	.24	-.34	-.04	-.22	.19	-.25	-.25	-.44
PA Total	-.36	.93	.14	.42	-.22	.13	-.48	.29	.01	-.02	.33	.24	-.38	-.09	-.13	.05	-.23	-.20	-.32
RS Act	-.35	.15	.87	.45	-.10	.24	-.08	.20	.07	-.06	.05	.07	-.11	.05	-.06	-.07	-.05	-.21	.03
Demand	-.11	.10	.79	.39	-.06	.13	-.17	.35	-.06	-.33	.19	.00	-.19	.00	-.17	.06	-.31	-.01	.05
Distract	-.65	.41	.46	.37	-.26	.34	-.43	.20	.19	-.08	.51	.75	-.28	.12	-.18	.29	-.31	-.33	-.42
Impul	-.31	.23	.89	.43	-.03	.15	-.25	.19	-.05	-.05	.26	.19	-.13	.00	-.21	-.00	-.26	-.26	-.09
Infan	-.70	.41	.54	.29	-.27	.23	-.26	.06	.20	-.07	.47	.57	-.25	.07	.00	.16	-.06	-.44	-.48
Neg	-.33	.20	.79	.30	-.03	.14	-.24	.27	.10	-.09	.55	.33	-.24	.08	-.26	.24	-.26	-.21	-.22
Fearful	-.65	.19	.10	-.13	-.19	.34	-.03	-.18	.31	.06	.23	.44	-.10	.20	-.12	.04	.24	-.25	-.45
Durell 26	.58	-.59	-.37	-.36	.40	-.42	.48	-.19	-.30	.10	-.40	-.38	.43	-.04	.32	-.14	.09	.29	.72
Par Read	.36	-.43	-.07	-.19	.28	-.14	.30	-.16	-.16	.02	-.37	-.33	.29	-.05	.12	-.14	.13	.18	.88
Time	-.61	.44	.42	.89	-.13	.33	-.37	.27	.10	-.17	.23	.26	-.29	-.08	-.19	.02	-.26	-.21	-.31
Num Cor	.32	-.56	-.28	-.36	.39	-.39	.56	-.26	-.26	-.07	-.39	-.31	.55	-.07	.22	-.35	.19	.22	.62
Vert	-.22	-.31	-.30	-.11	.19	-.31	.06	-.24	.22	-.15	-.29	.06	.13	.51	-.01	.18	.12	.35	.26
Omis	.01	-.05	-.19	-.10	-.10	.07	.21	.08	.01	-.05	-.16	-.09	.12	-.08	.68	-.11	.10	.07	.06

Mis	-.12	.10	.42	-.14	-.26	-.12	-.23	.09	.06	-.18	.25	.27	.05	-.04	.05	-.28	.03	-.10	-.61
Rep	.24	-.25	-.06	-.22	.09	-.19	.17	-.06	-.01	-.01	-.08	-.07	.31	.01	.03	.03	.16	.05	.17
Add	.27	-.35	-.04	-.09	-.01	.27	.42	-.07	-.04	-.19	-.52	-.38	.31	-.04	.01	-.03	.38	.21	.44
Hes	.06	-.09	-.09	-.15	-.03	-.07	.05	.01	.04	.07	-.08	-.03	.01	.10	.02	.06	.13	.82	-.01
Ign.Or	.09	-.23	.12	-.14	.15	-.21	.14	-.24	-.11	.09	.44	.05	.15	-.01	.02	-.22	.06	-.03	-.08
E Pronun	-.54	.47	.38	.91	-.16	.38	-.36	.31	.14	-.10	.24	.26	-.38	-.04	-.18	.13	-.27	-.21	-.18
Tot Quit	-.63	.52	.33	.77	-.20	.55	-.12	.25	.31	-.16	.08	.07	-.11	-.08	-.40	-.08	-.21	-.25	-.08
Tot Nois	-.22	.04	.13	.27	.03	.72	-.11	.06	-.15	-.03	-.07	-.02	-.21	-.03	-.03	-.05	-.25	-.11	.06
Q VP	-.23	-.11	.04	.26	.28	.12	.12	-.24	-.19	.12	-.63	-.13	.14	-.16	.02	-.48	-.02	.07	.18
Q VLES P	-.60	.52	.19	.42	-.31	.59	-.11	.38	.50	-.26	.39	.27	-.26	.26	-.21	.31	-.30	-.23	-.19
Q V C	-.31	.48	.33	.65	-.07	.26	-.07	-.03	.04	-.01	-.02	-.27	-.01	-.38	-.22	-.29	-.02	-.31	.08
Q VLES C	-.37	.26	.44	.76	-.22	.19	-.43	.03	-.01	-.11	.08	.15	-.27	-.04	-.02	-.08	-.20	-.20	-.12
Q Nasal	-.39	.37	.21	.57	-.18	.39	-.02	.36	.31	-.14	.08	.04	.05	-.13	-.65	-.03	-.10	-.13	-.12
N VP	-.08	.10	-.02	.20	.30	.47	-.17	.14	-.30	.06	-.12	-.17	-.09	-.33	.23	-.21	-.21	.22	.18
N VLP	-.33	.16	.20	.25	-.34	.88	.00	.09	.33	-.13	.04	.11	-.15	.11	-.24	.09	.02	-.31	-.09
N VC	-.17	.02	.09	.01	.06	.10	-.02	-.05	-.58	-.01	-.02	.08	-.06	.02	.09	-.05	-.01	-.03	.04
N Nasal	.02	-.11	.06	.06	-.01	.25	.14	-.02	.08	.01	-.03	-.15	-.03	.03	-.09	-.04	-.54	-.11	.11

APPENDIX J

INTERCORRELATIONS OF FACTOR SCORES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AA	1.000														
BA	.234	1.000													
CA	-.514	-.284	1.000												
DA	.410	-.141	-.411	1.000											
EA	-.332	.063	.077	-.373	1.000										
IA	-.155	-.122	.518	-.296	.053	1.000									
JA	-.322	-.118	.370	-.342	.289	.201	1.000								
BB	-.108	.029	-.061	-.022	.327	-.087	.105	1.000							
CB	.107	.152	-.121	.182	-.009	-.287	-.058	.135	1.000						
EB	-.241	-.018	.013	-.018	-.033	.056	.170	.432	-.027	1.000					
GB	-.142	-.109	.150	.011	-.067	-.182	.051	-.074	-.091	-.102	1.000				
IB	.170	.156	-.155	-.022	.211	.059	.032	.438	.083	.359	-.081	1.000			
KB	.000	.076	.045	.013	-.118	.066	-.155	.134	.141	-.101	.212	-.066	1.000		
LB	.161	-.098	-.362	.119	-.036	-.245	-.013	-.020	-.189	.111	.120	.149	-.205	1.000	
MB	-.088	.098	.225	-.040	.251	.225	.200	-.004	.002	-.038	.078	.043	-.077	-.141	1.000
NB	.137	-.004	-.026	.121	.090	-.050	.094	.018	.334	.071	-.028	.100	-.221	.058	.135
OB	.072	-.063	.098	-.065	.279	.042	.066	.150	-.116	-.085	-.025	-.065	.088	-.088	-.063
PB	.065	-.175	.042	-.019	-.099	.081	.059	.154	-.169	.010	.155	.063	.023	-.006	-.028
QB	-.079	.125	-.196	.085	.343	.041	.176	.118	-.025	.024	.187	.079	-.054	-.051	.130
RB	-.184	.082	-.110	-.151	.200	-.302	.115	.025	.180	.059	.110	-.128	-.020	-.057	-.069
SB	-.304	-.197	.269	-.041	.254	.154	.157	.011	-.298	.180	.110	-.026	.137	.014	.185
TB	-.037	.044	-.020	-.114	.207	-.065	.103	.082	.153	.016	.053	.157	-.078	.062	-.234
VB	.066	.109	-.051	-.086	.261	.176	.126	.237	.025	-.097	-.145	.157	-.005	.132	.225
WB	.015	.187	-.233	.009	.042	-.095	.003	-.140	-.156	-.124	-.131	-.078	-.078	.012	-.057
AB	-.449	-.084	.152	-.247	.196	-.116	.199	.364	-.178	.509	.282	.151	.073	.139	-.124
DB	-.388	-.280	.227	-.194	.053	.149	.262	.108	-.049	.214	.283	.110	.072	.060	-.032
FB	-.096	-.439	.146	.179	-.114	.197	.176	-.014	-.179	.322	.155	.044	.114	.110	.090
JB	-.025	.097	-.064	-.075	.057	-.122	-.044	.279	-.263	.058	-.008	.049	-.168	.209	-.138
AC	.416	.143	-.119	.076	-.102	-.118	-.066	-.144	.158	-.250	-.275	-.057	-.201	-.075	-.013
BC	-.122	-.067	-.061	-.008	.124	.112	.163	-.112	.031	.035	.079	-.001	.323	.178	-.161
CC	-.418	.003	.298	-.288	.106	.132	.013	.131	-.128	.275	.015	-.192	.173	.044	-.094
DC	.397	.145	-.138	.214	-.235	.090	-.249	-.208	.128	-.305	-.371	-.074	-.162	-.149	.151
EC	-.080	-.080	.145	-.068	.018	.045	.004	-.219	-.046	.069	-.077	-.273	-.114	-.157	.013
FC	.131	.107	-.121	.176	-.077	-.240	-.071	-.021	.817	-.216	-.192	-.183	.263	-.175	-.171
GC	.100	-.141	.115	.051	-.175	.054	-.083	-.110	.103	-.167	-.221	-.030	-.165	-.124	.128
HC	-.269	-.051	-.004	.114	.083	-.135	.117	.025	.034	.171	-.141	.007	-.152	.166	-.112
IC	.137	-.004	-.026	.121	.090	-.050	.094	.018	.334	.071	-.028	.100	-.221	.058	.135

LC	-.222	-.018	.011	-.286	.174	-.126	-.007	.070	.062	-.054	.077	.184	.041	-.046	-.336
MC	-.067	-.136	.040	.094	.082	.112	-.099	.176	-.157	.217	.210	.150	.099	.153	.085
NC	.398	.092	-.111	-.051	.098	-.004	-.082	-.162	-.037	-.315	-.034	.122	-.131	.091	-.076
OC	-.184	.082	-.110	-.151	.200	-.302	.115	.025	.180	.059	.110	-.128	-.020	-.057	-.069
QC	.034	.164	-.186	.004	-.160	-.175	-.178	-.134	.338	-.073	-.073	.032	.048	-.060	-.433
RC	.079	-.125	.196	-.085	-.343	-.040	-.176	-.118	.025	-.024	-.187	-.079	.054	.051	-.130
SC	-.323	-.244	.215	-.044	.065	.099	.264	-.008	.077	.123	.272	.067	-.089	-.026	.094
LD	-.256	-.007	-.215	.058	.321	-.234	.066	.187	.180	.098	.153	-.104	-.154	.068	.057
AD	.440	.076	-.118	.088	-.107	-.049	.090	-.175	.089	-.076	-.095	.183	-.041	.126	-.032
BD	.220	.056	.005	-.069	-.439	-.117	-.190	-.378	.011	-.011	.026	-.029	-.042	.210	-.146
CD	.431	.146	-.293	.266	-.188	.106	-.110	.064	.296	.063	-.397	.165	-.114	.073	.010
DD	.078	-.121	-.066	.186	.088	.032	-.162	-.146	-.195	-.237	.029	-.140	-.008	.013	.223
ED	-.102	.238	.102	.036	.197	.074	.041	.018	-.089	-.034	-.063	-.122	-.102	-.079	.141
GD	-.038	.275	-.171	-.096	.095	-.161	-.119	-.054	-.089	-.075	-.086	.084	.158	.022	-.090
HD	.405	.211	-.119	.057	.108	-.194	-.102	.107	.288	-.273	-.228	.171	-.036	-.138	-.041
ID	.063	.002	.050	-.235	.167	.049	-.108	.046	.033	.109	-.246	.149	-.022	-.028	-.064
JD	.287	-.126	.018	.171	-.027	-.208	.002	-.003	.058	-.181	-.040	.063	-.228	-.093	-.114
KD	.103	-.069	.120	-.086	-.133	.037	-.123	.046	-.069	-.097	-.026	-.066	-.082	.132	-.165
MD	.415	-.018	-.232	.201	.001	-.160	-.275	.008	.141	-.089	-.099	.160	-.030	.181	.065
ND	-.006	-.217	-.110	.227	-.068	.029	-.088	.079	.017	.110	-.142	-.286	.044	-.039	-.117
OD	.132	-.032	.102	.041	-.051	-.110	-.061	-.529	.056	-.469	.109	-.275	.008	-.160	.216
PD	.267	-.024	-.076	-.027	.049	-.080	.136	.071	.056	.016	.144	.046	.036	.201	.023
QD	-.011	-.028	-.100	-.109	-.047	.027	-.067	.052	-.117	.072	.083	.136	-.005	-.041	-.108
RD	-.192	.023	.037	.080	-.082	.115	-.320	.031	.253	.042	.049	.080	.229	-.073	.147
SD	.289	.144	-.247	.032	-.097	-.141	-.121	-.119	.310	-.201	-.310	.044	-.200	-.001	-.061
TD	.378	-.078	.068	.014	-.149	.068	-.279	-.279	-.093	-.161	.136	.031	-.157	-.054	-.119
UD	.119	-.045	-.184	-.088	.203	.039	.089	-.128	-.068	-.279	-.205	-.113	-.172	.110	-.155
CTMM IQ	.481	.356	-.413	.040	-.091	-.242	-.244	-.079	.064	-.121	-.228	.055	-.084	-.055	-.130